

THE INDUSTRIALIST.

Historical Society

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, AUGUST 20, 1892.

NUMBER 1.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their ability and means.

All labor at the College is under the direction of superintendents of the departments, and offers opportunities for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and it is not paid for unless the student is employed upon work for the profit of the College.

Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from 8 to 10 cents an hour. The superintendents strive to adjust their work to the necessities of students and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly payroll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay a part of their expenses.

In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

EXPENSES.

Tuition is free, and no general fee for incidental or contingent expenses is charged.

Lessons in instrumental music—two a week—are from \$10 to \$14 per term, according to its length; one a week, \$6 to \$8.40. In classes of two or more, at a less rate. One half is to be paid to the instructor in charge with the first lesson; the other half at the middle of the term.

The cost of text-books at the book stores is, for the first year, about \$4 a term; for the second year, \$2.75 a term; for third year \$7 a term; and for

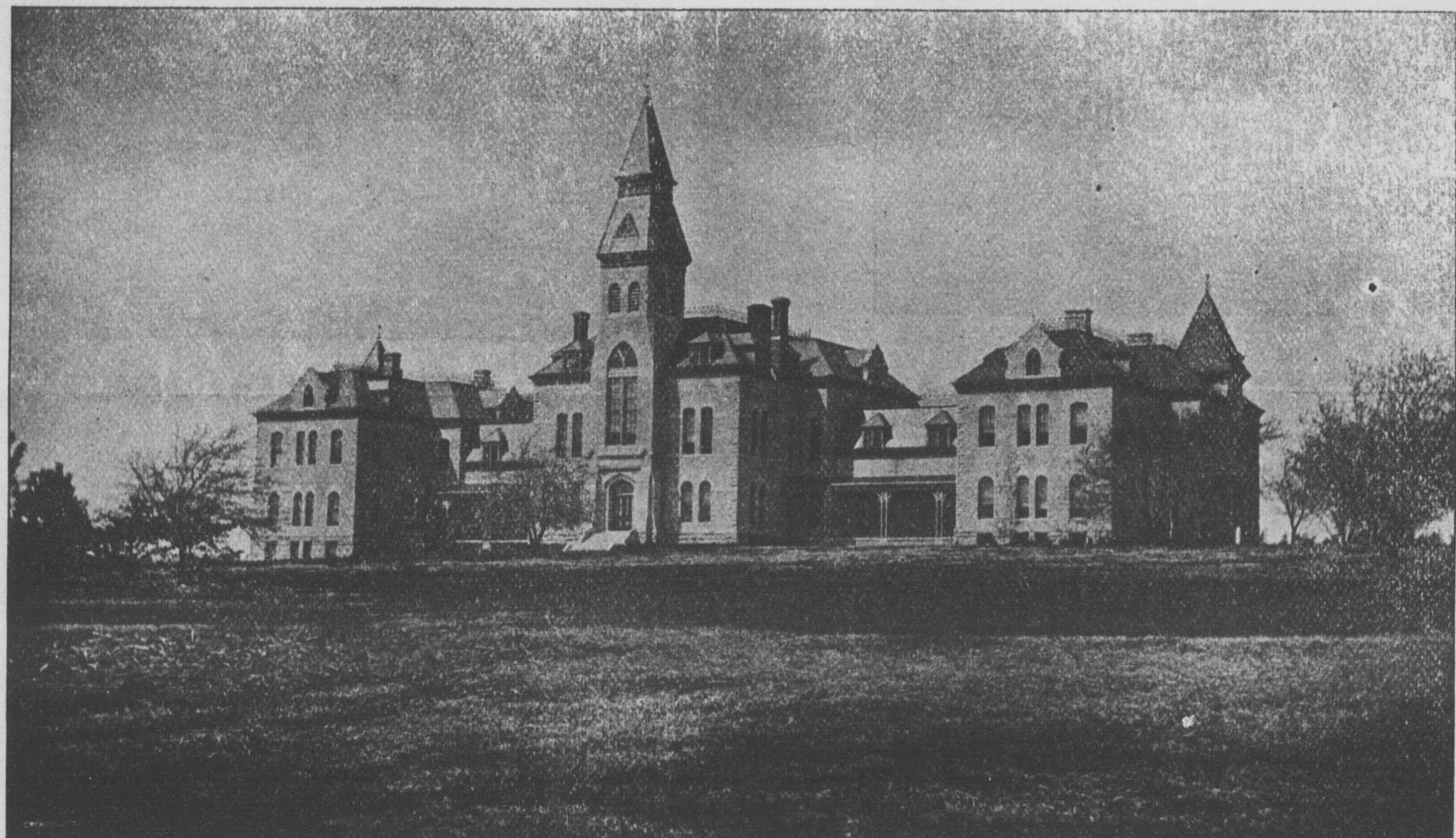


STUDENTS AT WORK IN THE GARDENS.

per cent is required to pass any study.

Examinations in the course are held as arranged by the Faculty. The results of these examinations are marked on a scale of 100, and combined with the average of the preceding daily exercises upon the same scale into a grade for report to the Secretary. But any student not present at three-fourths, at least, of the class exercises, receives, at such time as the teacher may name, a more extensive examination than the general one, and this examination alone decides the grade.

Averages in the grades of the register are made by giving the final term grade a value of two-thirds and previous grades a value of one-third. After each term examination during the first year of attendance, a report of advancement is



KANSAS STATE AGRICULTURAL COLLEGE—MAIN BUILDING.

the fourth year, \$5.50 a term.

The expenses for apparatus and tools to each student during the course are as follows: Drawing, \$3.50; microscope for botany and entomology, \$1.50; case, pins, etc., for entomology, \$2.25. The total expense for these articles during the four years is less than \$10.

Board and washing are not furnished by the College. Board, with furnished rooms, can be procured in private families at from \$2.75 to \$4 per week, or table board in student clubs from \$1.50 to \$2.25 per week. Some students board themselves at even less cost; and rooms for the purpose can be obtained at a rent of from \$1 to \$3.50 a month. Washing costs from \$.50 to \$1 a dozen pieces.

EXAMINATIONS.

Examinations for admission are held at the beginning of each term, as laid down in the calendar of the College year. Applicants, to enter at any time during the term, shall have special examinations. These examinations are chiefly written, and a standard of 70

made to parents; and any student, upon leaving College at the close of the term, may receive a certificate of standing.

The final grade and the term average must be at least 70 for passing any study; and any student who fails to pass in two studies of the course may drop back a year or withdraw from College.

After completing the studies of the first year, students are allowed special examinations only upon recommendation of the professor in charge, and by permission of the Faculty. Permission for examination in studies not pursued with the class must be obtained at least two months before the examination is held. All such examinations are held under the immediate supervision of the professor in charge, and are thorough and exhaustive.

Students deficient in entrance studies must make good such deficiencies before entering upon the work of the second year.

COLLEGE BUSINESS.

Loans upon school district bonds are to be obtained from the Loan Commissioner. Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer, in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, managing editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library should be sent to the Librarian; donations for the Museum, to the chairman of the Committee on Museums.

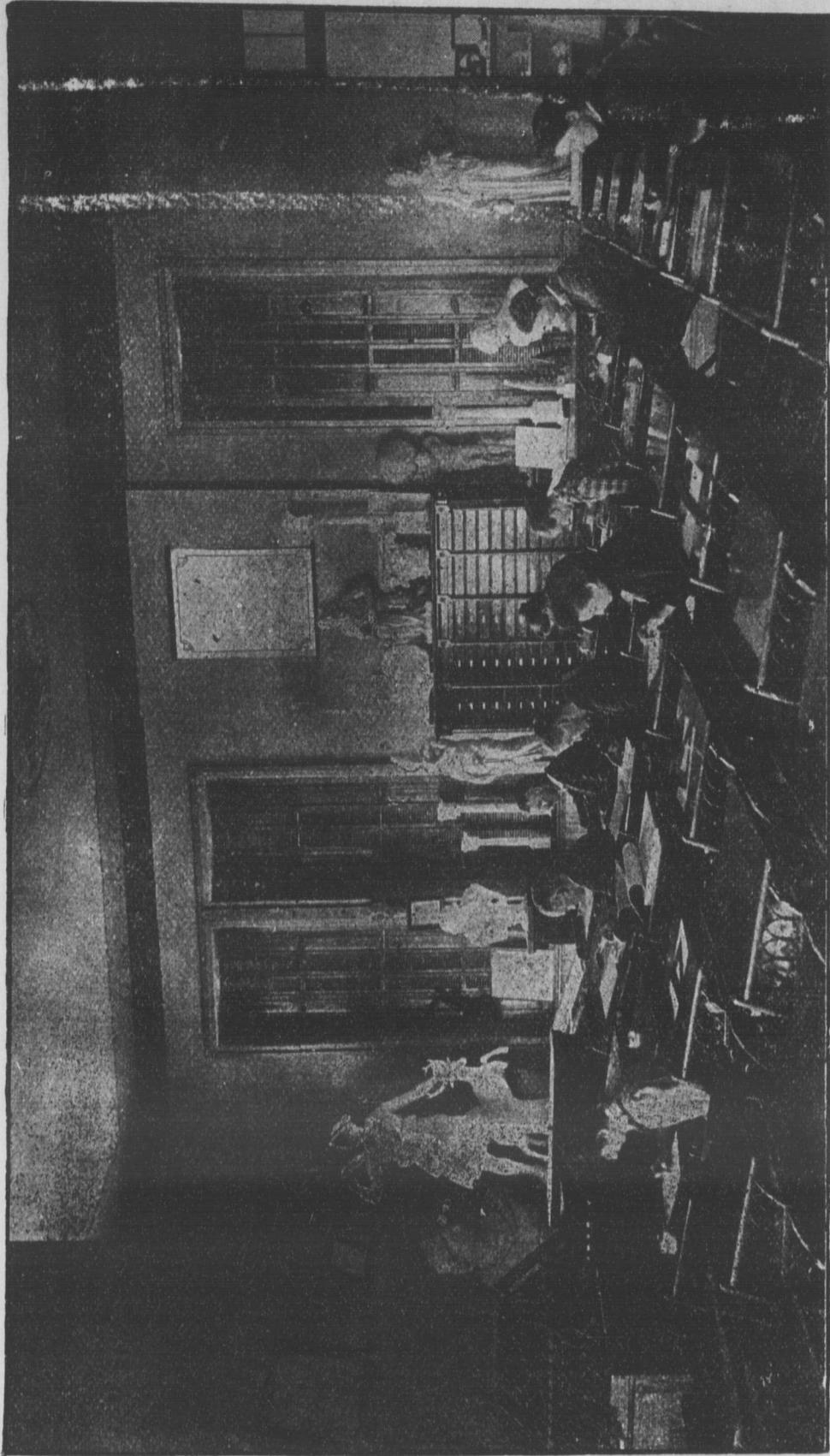
General information concerning the College and its work, studies, examinations, grades, boarding places, etc., may be obtained at the office of the President, or by addressing the Secretary.

Applications for farmers' institutes should be addressed, as early in the season as possible, to the President.

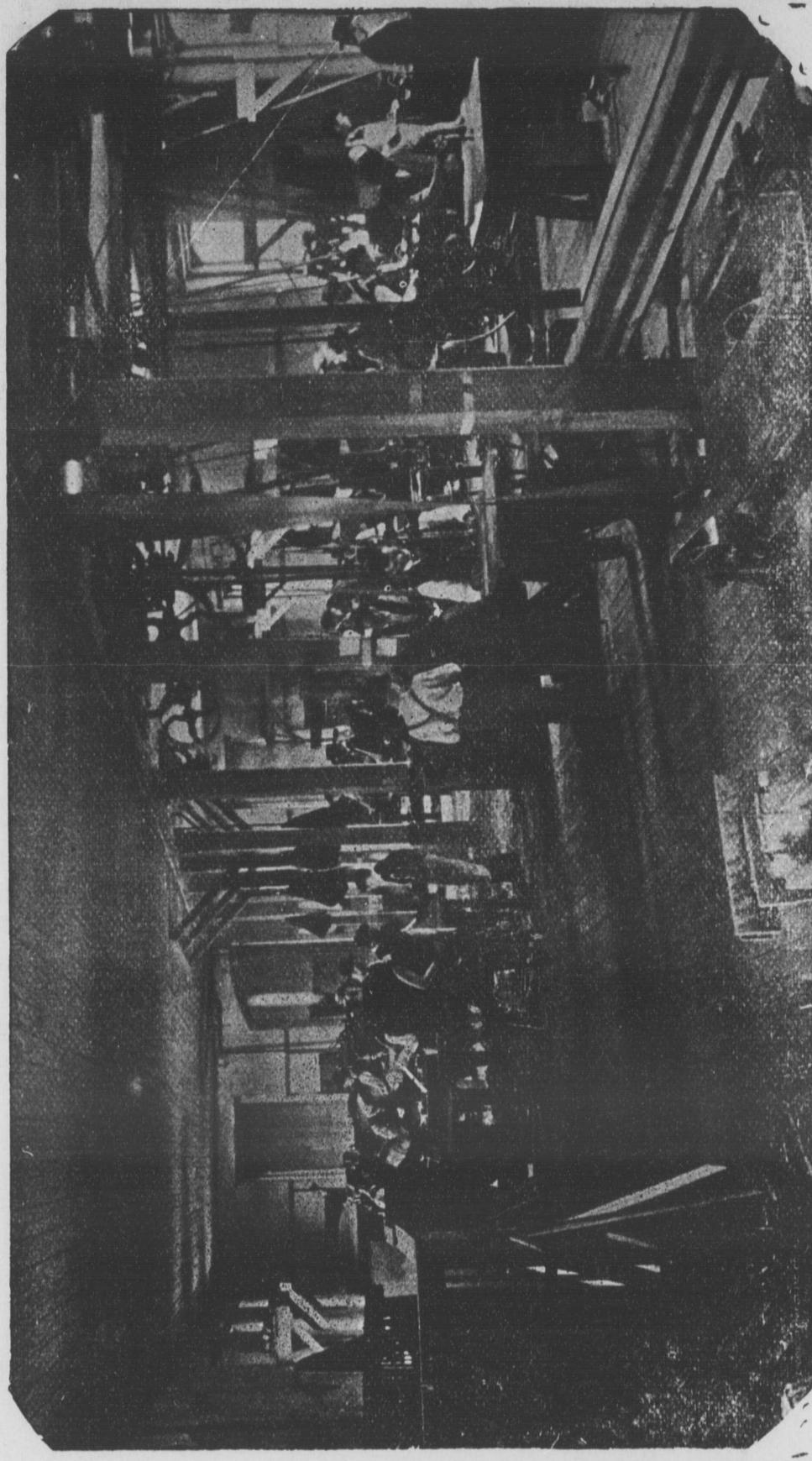
The Experiment Station should be addressed through the Secretary of the Council.



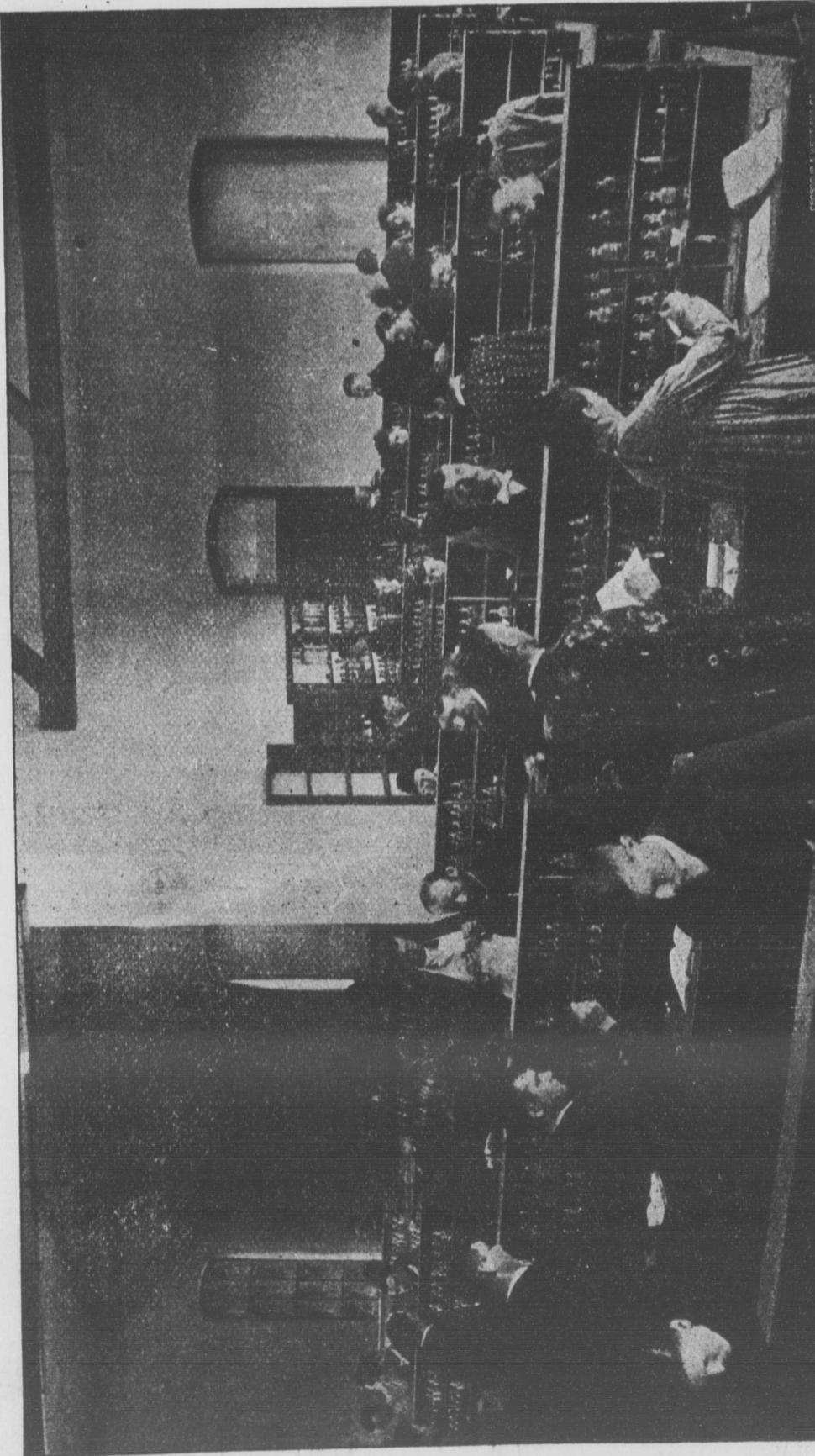
STUDENTS AT WORK IN THE GARDENS.



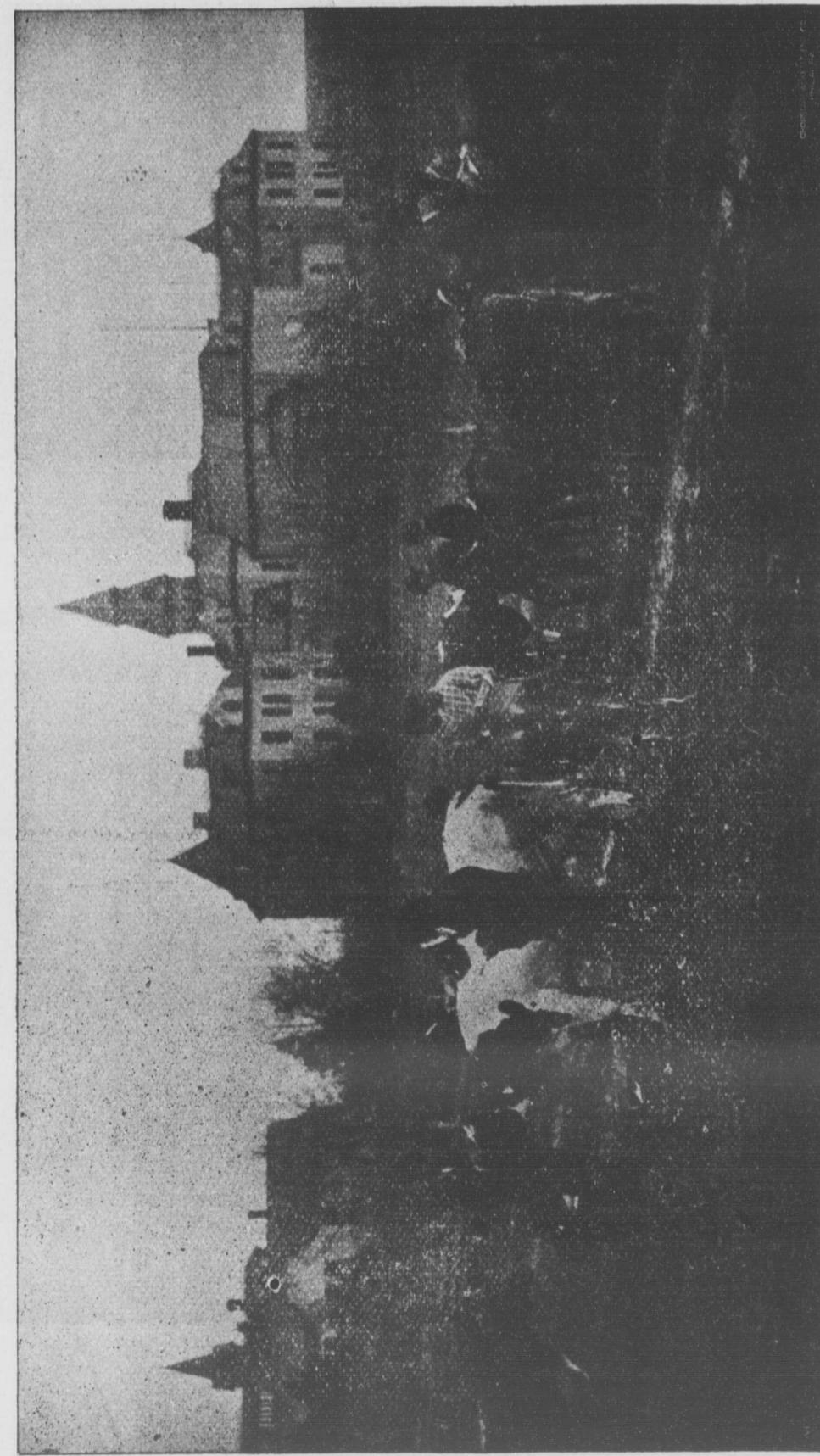
KANSAS STATE AGRICULTURAL COLLEGE—DEPARTMENT OF INDUSTRIAL ART.



KANSAS STATE AGRICULTURAL COLLEGE—CARPENTER SHOP.



KANSAS STATE AGRICULTURAL COLLEGE—CHEMICAL LABORATORY, ANALYTICAL ROOM.



KANSAS STATE AGRICULTURAL COLLEGE—STUDENTS JUDGING DAIRY CATTLE.

THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, AUGUST 20, 1892.

NUMBER 1.

COLUMBIAN SUPPLEMENT.

Kansas Educational Exhibit, Columbian Exposition.

G. W. WINANS (State Superintendent Public Instruction), President, Topeka.
A. R. TAYLOR (President Kansas State Normal School), Secretary, Emporia.
G. T. FAIRCHILD (President Kansas State Agricultural College), Treasurer, Manhattan.
F. H. SNOW, Chancellor of State University, Lawrence.
W. A. QUAYLE, President Baker University, Baldwin.
D. E. SANDERS, President of Kansas Normal College, Fort Scott.
R. W. STEVENSON, Superintendent of City Schools, Wichita.
E. STANLEY, Superintendent of City Schools, Lawrence.
C. Y. ROOP, Superintendent of City Schools, Salina.
D. R. BOYD, Superintendent of City Schools, Arkansas City.
J. E. KLOCK, Superintendent of City Schools, Leavenworth.
A. W. LEECH, County Superintendent, Mound City.
FLORENCE DICKINSON, County Superintendent, Alma.
J. E. PEAIRS, County Superintendent, Lawrence.

COMMITTEES.

EXECUTIVE—Winans, Taylor, Fairchild.
FINANCE—Winans, Leech, Quayle, Stanley.
EXHIBIT—Taylor, Boyd, Sanders, Pears, Klock.
PUBLICATION—Roop, Winans, Fairchild, Taylor.

SUPERINTENDENT, L. C. Wooster, Eureka, Kansas.
Address after Oct. 1, Topeka.

GENERAL DIRECTIONS.

Inquiries as to methods of raising funds may be addressed to G. W. Winans, Topeka, or to L. C. Wooster, Eureka.

Funds raised should be sent to Geo. T. Fairchild, Treasurer, Manhattan.

Plans and information as to forms for exhibit, materials, etc., may be obtained from L. C. Wooster, Eureka.

State Superintendent Winans, Topeka, L. C. Wooster, Eureka, or any member of the Board may be asked to assist at County Institutes and Associations in arousing interest in the Exposition.

Colleges and other institutions not connected with the public schools should apply for space to Hon. Geo. R. Davis, General Director of Columbian Exposition, Chicago, Ill.

FROM PROMINENT EDUCATORS.

Kansas stands the peer of any of her sister States. Her citizens are loyal, patriotic, and progressive. Her teachers are earnest, scholarly, and energetic. Her schools are proof of her greatness, and an assurance that the star of her glory will continue to rise and shed its luster in the bright constellation of American Liberty. Fellow teachers, let us make such an exhibit at the Columbian Exposition that the eyes of all the world will be attracted toward the greatness of our State.—H. W. Gaines.

The history of education in Kansas is a story of unbroken progress. With a rich patrimony of public land, the basis of a system of unrivalled excellence, with her hills and valleys dotted with school-houses, with her colleges and institutions of learning established in every section of the State, and with a corps of Superintendents and teachers of talent, tact, zeal, energy, State and educational pride, Kansas will not fail. This is our work.—J. C. Davis.

KANSAS BOOKS AND EDUCATIONAL PUBLICATIONS.

It will greatly aid the Kansas Exhibit in educational matters if the authors or publishers of Kansas-made books of all kinds will contribute at least two copies to the Board of Directors for the exhibit. One may be placed with the general exhibit of schools and colleges and one in the State Building where Kansans may feel the larger pride in products of Kansas brains. The Board is especially desirous of procuring files of all the educational journals issued in the State at any time, and will bind them, doubtless, for the exhibit. They may be sent to Supt. Geo. W. Winans, President of the Board of Directors, at any time within the next three months, but the sooner the better.

Should any wish to furnish more than the two copies required for the Exhibit, hoping to attract the attention of distinguished visitors, the Board will doubtless arrange to care for such extra copies in a satisfactory manner.

TO KANSAS EDUCATORS.

We print over fifteen thousand copies of this second Supplement to the INDUSTRIALIST, in order to reach everybody interested in preparing work for the Exposition next summer at Chicago.

This will probably be the last issue this year, and we earnestly ask that it be read from the first line to the last, and then filed where it may be found after the schools begin next fall. In order to make the information it contains as complete as possible, portions of articles found in the former Supplement are reprinted in this.

The Superintendent has visited every portion of the State during the Institute season, now closing, and he finds everywhere a unanimous determination on the part of Teachers and Superintendents to make the Kansas Educational Exhibit as good as, and, if possible, better than, any other in the Liberal Arts Building. Kansas pluck, Kansas intelligence, and Kansas enthusiasm have already placed our great State in the foremost line of progressive commonwealths, and each Teacher and Superintendent, with a Kansas heart in his bosom, says that she shall stay there.

But all feel that Kansas cannot lead without a long pull, a strong pull, and a pull altogether on the part of her educators.

Do not be afraid of making the exhibit material too abundant. It can undoubtedly overflow into the Kansas building after we have worthily filled the space allotted to us in the Liberal Arts Building.

Local exhibits have already been made at several cities in the State, and the people have been astonished and delighted with its excellence.

Do not fear but what we shall have many things well worth going thousands of miles to see next summer at Chicago; only be sure that this material has the variety that comes alone through many hands engaging in its preparation.

One-third of the funds necessary to the success of our Exhibit was raised in a few weeks last spring. It was all done so easily, and the local benefits in the line of educational work and enthusiasm were so great, that many Superintendents and Teachers are ready to raise their proportion of the fund over again. We have no desire to throw cold water on such sensible willingness, and we would strongly advise those teachers who did not get a chance to try even once last spring that they make their plans to celebrate Columbus Day this fall, and thus participate in these benefits. Let the children have a chance to earn their nickles by preparing an exhibition in the old-fashioned way, and all friends of our public schools will gladly give the small admission fee required. The exercises may be varied pleasantly and profitably by placing on exhibit samples of school work for the inspection of the patrons. For a fuller discussion of programme and local exhibits please read articles under these heads.

COLUMBUS DAY AND THE PUBLIC SCHOOLS.

PRIMARY OUTLINE OF THE OFFICIAL PROGRAMME FOR THE NATIONAL CELEBRATION OF OCTOBER 21.

A uniform programme for every locality in America, to be used on Columbus Day, simultaneously with the dedicatory exercises of the World's Exposition grounds, will give a significant unity to America's celebration of its 400th Anniversary. Accordingly the Superintendents of Education, when they adopted the plan of a national Public School Celebration of Columbus Day, instructed the Executive Committee to prepare an official programme, identical for every city and village in the country.

The Executive Committee are now endeavoring to secure contributions from the ablest American writers. The names of the authors cannot be announced yet. But the general plan for the exercises of the day is as follows:—

The official programme provides for

A MORNING CELEBRATION.

The pupils of our public schools are to gather on Columbus Day at the usual hour, in their school-houses. Instead of the regular recitations

the morning is to be devoted to exercises befitting the Anniversary. These exercises may be simple or elaborate, according to the resources of the school.

Many schools will doubtless do little more than use the official programme; adding to it the old, familiar national songs, and a few speeches by leading citizens. Other schools, with larger resources, will, we are sure, extend the programme with additional features, such as special music by chorus or orchestra, historical exercises, pageants, etc.

The largest liberty for individual ingenuity and taste is left to all schools; and the Executive Committee would encourage a local variety to be given to the official programme.

The official programme will consist of the following features:—

(1) Rising and saluting the flag, (under the direction, wherever possible, of a detail of veterans of the war).

(2) The song of Columbus Day, (to a well-known tune).

(3) The address, (to be declaimed by the best speaker among the boys).

(4) The ode, (to be read or recited by a young lady).

(5) "America," (which will in all cases be the closing song).

The song, the address, and the ode will all be original, prepared especially for the celebration by some of the best of American writers.

By the first of September this official programme, in a complete form, will be published throughout the country, and will also be sent to all applicants who address the Chairman of the Executive Committee.

Even if nothing be added to this programme except perhaps a few speeches and some familiar national songs, the ceremonies will be impressive and worthy of the occasion.

But for schools which desire to arrange a more enriched programme, a number of other appropriate features may be, at the same time, suggested by the Executive Committee.

THE AFTERNOON CELEBRATION.

In nearly all cities and large villages, however, the citizens will wish a formal demonstration on Columbus Day which may be in their own hands. Wherever the citizens are to conduct a celebration, two matters should be especially arranged:—

First, that the civic celebration occur in the afternoon, so that it will not conflict with the morning celebrations which are going on in all the school-houses.

Second, that in the afternoon celebration by the people, ample recognition be given to the public school idea, which is to be the characteristic of the day throughout the nation.

This sketch of what is proposed for Columbus Day is enough to indicate two things:—

1. That the official programme will be so simple and can be so easily arranged that no school need wait till it is published before beginning its own preparations for the celebration.

2. That the object of the National Public School Celebration of Columbus Day needs the cordial co-operation of the citizens generally in each locality in order to be fully realized.

A few suggestions of a practical nature will, accordingly, be of advantage both to teachers and to editors and to other friends of the celebration just at present.

1. A strong local committee should be appointed at once. It would be well to include in this committee not only the leading school officials, but also editors of the local press, army veterans, and leading citizens who are known to favor the celebration by the schools. Only such as are likely to give earnest support to the work should be appointed.

2. The post-office address of the Chairman of this Local Committee should be sent to the office of the Chairman of the Executive Committee (Francis Bellamy, *Youth's Companion* office, Boston, Mass.) in order that the Chairman of the Local Committee may receive the official programme, and other communications.

3. This Committee should first see that each school is provided with a flag, the salute to which will be the first feature of the official programme. They should also advise with each Principal as to

the best way in which the celebration can be carried on in his school-house; arranging for speakers, and suggesting exercises additional to the official programmes.

4. This committee should also arrange that the citizens' celebration be made to occur in the afternoon; and should see that the desired prominence is given to the free school idea in the afternoon ceremonies. Where no arrangements have yet been made for a citizens' celebration, this committee might themselves take the initiative, and organize the afternoon demonstrations as well as the morning observances in the school-houses.

5. The greater publicity that is given to this committee, both in its formation and in its work, the better. Accordingly, the attention of the people generally must be gained and their interest secured. Let the people be freely invited to give suggestions and to send communications to the local press as to the best conduct of the celebration.

6. The committee should see that the editors of the local papers are interested in the movement, and the people informed through the columns of these papers of the celebration, and what is to be done to make it a success.

In one word, this 400th Anniversary of America belongs to all the people. The public schools take the lead because they are the organization closest to the people, most characteristic of the people, and fullest of hope for the people.

THE COLUMBIAN EDUCATIONAL HISTORY OF KANSAS.

It is desired that the manuscripts for this history be ready for the printer by the first of October; but, in order that they may be ready at that time, it will be necessary to begin their preparation at once. Superintendents and heads of institutions should select immediately the proper person to do this work, and help them in pushing it.

The circular already issued by the Board to the teachers of Kansas provides that this history shall contain a condensed history of county or city schools from organization; also of all higher institutions of learning, whether State, private, or denominational. These should show the development and the growth of the schools; the attendance at various periods; the character of the early school buildings; the number of pupils sent to higher institutions of learning, etc.; the present condition of the schools and the appliances, together with the present value of the school property and appliances; endowment fund, etc. Mention should be made of those who have been the executive heads of the several schools, both as superintendents and presidents, and of those who have been especially active in your county or city as factors in developing the school or college; in short, as complete a condensed history of the schools as possible should be given. It is recommended that these histories be enlivened by reminiscences, concisely told; and that statistics be written rather than placed in the tabular form. This will make the history more readable and less expensive.

County and City Superintendents should give their plans for holding teachers' meetings and reading circles, and their methods of grading the schools under their charge, and their success in the same.

It is further suggested that a few engravings might well accompany each component history. Most institutions already possess cuts of their buildings, and President or Principal, and the counties and cities of the State could easily obtain photo-engravings of their Superintendents.

The Board of Directors have decided, in accordance with the wishes of many teachers and Superintendents, to print these histories in one office, the office to be determined by bids called for early this fall.

The expense attending the printing and binding of these histories must be borne by the counties, cities, and institutions contributing, and in proportion to the space occupied.

Each history is limited by the Board to about four pages of printed matter. Each page is to be 6 x 9 inches, and will hold about five hundred words of ordinary length.

Carefully prepared estimates of the expense per printed page make it \$2.00. Should the ex-

pense be more or less than this, the difference will be subtracted from or added to the Columbian fund.

It is planned to give one page in addition to the cuts accompanying the history, the expense as before to be borne by the one contributing. Each page of engravings will cost from \$12 to \$16, the exact amount depending on the size of the order. Let the Board know what cuts you possess and what more you desire, and we will try to give you a closer estimate of the cost.

Each county, city, and institution contributing a history will be entitled to a copy of the bound volume.

Such an opportunity for preparing a complete educational history of Kansas may never come again; the chief actors are fast passing away, and the information which they would gladly furnish now will in a few years be beyond recall.

From past observation we know that the counties, cities, and institutions of learning in Kansas are ready to push forward any work that will elevate our educational standards, and we feel confident that Kansas will not be one whit behind her sister States in building an imperishable monument to education—a Columbian History of Education in Kansas.

PHOTOGRAPHS.

It is very desirable that each county, each city of the first or second class, and each State or denominational institution should prepare two duplicate albums of photographs of buildings and prominent educators, or, if they prefer, two sets of straw-boards holding photographs. Duplicates are desired so that the photographs may be placed both in the National and State buildings.

The buildings should be those interesting because of age or perfection of plan. It is recommended that the old buildings and the new ones replacing them be placed side by side on the straw-boards, or on the same or opposite pages of the albums to show progress.

The educators given a place on the straw-boards or in the albums should be Boards of Education, Superintendents and teachers, County Superintendents and their teachers, Trustees of educational institutions, State or denominational, and their instructors.

The albums recommended contain leaves upon which the photographs may be mounted by the artist. To show sizes and prices we quote the Howard albums, manufactured by the Collins Card and Album Co. These albums contain fifty pages for pictures, and may be obtained through any photographer:—

Size of Leaf.	Size of Photograph.	Price.
No. 1	6 x 7	4 x 5 or 4½ x 6½ \$1.25
No. 4	11 x 14	8 x 10 2.50

The straw-boards, or 10-ply card-boards, must be 22 x 28 inches in size, and are for wall exhibit. These boards should hold photographs on both sides, and will be framed and hinged to the wall or to a standard, making a large album. This form of mounting photographic prints admits a variety of groupings, and will attract the attention of the far greater number of visitors to the Exposition.

For both book and straw-board mountings, the cabinet size of photograph, 4½ x 6½, is recommended for individuals and small buildings, and the 8 x 10 size for groups and large buildings.

On or near each photograph should be legibly written a brief statement of all facts of interest connected with the picture.

It is further recommended that each county send a set of unmounted photographs of the best school buildings and the most prominent educators, to be mounted by the State Committee, so as to form a large illustrated map of the State. These photographs should be 8 x 10 in size.

Do not be backward in offering your photograph (unmounted) to your Superintendent or Principal. There is no face so homely or so good looking that it will not be most acceptable. We wish the world to see what the average Kansas teachers are like, and we shall fail in this if we present the photographs of Presidents, Superintendents, and Principals only. The faces of these are much more cosmopolitan than those of the average teacher.



THE Great Southwest SYSTEM,

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COUNTY SCHOOL WORK.

In preparing work for the exhibit, teachers and pupils shall be guided by the general rules made by the Board of Directors, which accompany this outline.

1. Kindergarten and primary work and devices.

2. Made work in clay, paper, or wood.

3. Manuscript work on any subject taught in the school.

4. Maps drawn from memory.

5. Drawing (free hand), copies, original designs, drawings from objects, also mechanical drawings.

6. Composition work—Illustrated stories, stories produced from memory, stories suggested by written subjects or by pictures, essays on themes assigned. (To be prepared in the same manner as the regular examination papers).

7. Penmanship—All work to be written from the printed page.

8. Spelling—Test manuscripts from examinations.

SPECIAL WORK.

Work in any subject as above, as:—

1. Arithmetic—Solutions and drawings, showing methods of analysis and illustrations.

2. Grammar—Diagrams, parsing, analysis, etc.

3. Geography—Written summaries, drawings showing the forms of land and water, relief maps, etc.

4. Physiology—Drawings showing the framework or organs of the body, etc.

5. History—Drawings showing the plans of campaigns, battle fields, historical relics, buildings, etc.

6. Composition—Essays, debates, orations prepared for rhetorical exercises. Originality, diction, and arrangement should be considered in making selections of work for the exhibit.

7. Special work must be done in accordance with the rules of the Board. See 23-26.

NOTE.—The above outline is intended to be merely suggestive. The superintendent and teacher should use their judgment and skill in bringing out the best work that their schools can accomplish.

If you know of any teacher who has not received this Supplement, please send his name to the Superintendent of the Educational Exhibit, Eureka.

**RULES GOVERNING THE PREPARATION OF
SCHOOL WORK FOR THE KANSAS EDUCATIONAL EXHIBIT.**

1. All work submitted shall be wholly that of pupils in actual attendance, without help from the teacher, and shall be prepared subsequent to March 20th, 1892, and forwarded prior to January 1st, 1893.

2. The examination papers submitted shall be those of the regular class examinations, representing actual class work, and not the result of special drill for this exhibit.

3. All written work must be done with ink.

4. The questions upon which the pupils in the public schools shall be examined shall be prepared by the County or City Superintendent, and in other schools they shall be under the direction of the executive head of the schools so far as practicable.

5. In the preparation of all examinations, the questions shall be written by the pupil immediately preceding his answer.

6. The teacher shall give the directions for the preparation of all work before it is begun. This refers to the form of the work only, and not to processes involved. These must be the work of the pupil, not merely his writing.

7. The teacher must accompany the work prepared by each class, and in each subject, with the following statement: "The accompanying work in (grade) in (subject) has been prepared strictly in accordance with the rules laid down by the Kansas Educational Board of Directors for the Columbian Exposition. I have given the pupils no assistance, and I do not believe that they have received help from any source whatever. (Signed)....."

8. In the preparation of work for the exhibit the original draft may be made on slates or paper. From this, the paper for the exhibit shall be prepared. The first copy only shall be accepted. A second trial shall not be permitted. Neither the original draft nor the completed copy shall be criticised or corrected by the teacher or by any other person.

9. Both the original draft and the completed paper must be prepared at the same sitting, and the time, in minutes, from beginning the original draft to the completion of the paper, shall be noted upon each paper.

10. In all work in drawing, a statement shall accompany the work, showing whether it is copied work, enlarged from a copy, or original design, or drawing from objects, and whether it is mechanical or free hand.

11. Each paper shall contain the following facts: The name of the school and city, or the number of district and county, together with the date of preparation, the time of preparation (in minutes), the age, name, and grade of pupil.

12. Written work may be prepared in either of two forms:—

(a) In book form.

Book work shall be upon the following kind of paper: Single sheets $8\frac{1}{2} \times 11$ inches, $1\frac{1}{4}$ inches margin upon the left edge for binding, and $\frac{3}{4}$ inch on the right edge. (The above margins to be indicated in the ruling by vertical lines.) In all cases the horizontal faint lines should extend only between the vertical lines.

(b) Work for wall exhibit:—

This work shall be placed on heavy straw-board 22×28 inches, the long side to be the vertical side. The paper to be adapted to the kinds of work, either for drawing or writing. The size of the paper to be so adjusted as just to cover the whole surface of the board, or the straw-board may be covered by a single paper.

13. The paper used for the book work shall be of two kinds, ruled as follows: (1) Single faint-line, width $\frac{3}{8}$ inch; and (2) 4-line ruling, or staff ruling, width $4\frac{1}{2}$ inch. The staff ruling may be used in all grades below the 5th year. In all grades above the 4th year, single-line ruling shall be used. This paper, with proper ruling and heading, may be secured of The Hall & O'Donald Litho. Co., Geo. W. Crane & Co., and The Roudebush Publishing Company, Topeka, Kansas, at \$2.75 per thousand, directly, or through your local dealers.

14. The writing should begin and end with the vertical ruled lines, except at the beginning and close of a paragraph.

15. In manuscript work, form (a), both sides

of the sheet should be filled; in form (a), only one side. It is suggested that, except in the higher grades, one sheet is as much space as any one pupil should be required to present on any topic.

16. Paper prepared for wall exhibit will have but one side covered with work. These papers will be pasted on the straw-boards, and each side of the board must be fully covered. Work in arithmetic, grammar, physiology, map-drawing, etc., may be thus exhibited.

17. In preparing work for the wall exhibit some method should be carried out with reference to the arrangement on each face of the board. (1). The work should be of the same kind. (2). The arrangement should be that which will produce the best effect as a group. (3). It ought to exemplify some idea, to be a complete whole.

18. All work for wall exhibit should be arranged on boards, as indicated above. Thus specimens in botany, work from the laboratory, etc.

19. Teachers will select from the work in each subject on which their pupils are examined, 50 per cent of the best papers. The general correctness in subject matter, form, and legibility, should determine the selection by the teacher. These should be sent to the County Superintendent, City Superintendent, or President of the school.

20. The Superintendent or President of the school will make such selection from this work as in his opinion will be most creditable. This he will forward to the Board of Directors, together with a statement of per cent selected in accordance with rules hereafter to be prescribed.

21. The book work shall be bound, but the method and manner of binding will be determined later.

22. A set of these rules shall be bound with each volume of papers.

23. Any teacher wishing to make an additional statement as to the particular conditions under which the work was produced, or as to the methods adopted, may do so, and have the same bound in the book.

24. Special work shall be headed by the words "Special Work."

25. Special work is to be the work of the pupil unaided by the teacher, but prepared under and by his direction in accordance with the rules of the Board of Directors above given, except that the work is not required to be done at one sitting, but the whole time occupied should be shown in its proper place.

26. Special work may be prepared by a whole class, or by a single pupil, or by a number of pupils selected from the class; but all special work must be put up in accordance with the plans indicated above. It may be in either book form or prepared for wall exhibit.

All Superintendents and Principals who desire the twelve-page circular, which contains much matter of special interest to high schools, academies, and Colleges, may obtain it by writing to State Superintendent Winans, Topeka, or to the Superintendent of the Educational Exhibit.

**THE EDUCATIONAL VALUE OF THE EXHIBIT
TO THE KANSAS SCHOOLS.**

The educational value of the proposed exhibit of the Kansas schools should not be overlooked.

1. It will awaken a local and State pride which will arouse increased activity on the part of all connected with our schools. The district schools of Kansas as a whole compare favorably with those of the eastern and middle States, and as their work is placed side by side, we shall have reason for a little encouraging self congratulation.

2. It will stimulate increased interest on the part of every pupil. The fact that his school and his work will compete for recognition by the State Board, and by the great throngs that will visit the World's Fair will spur him to unusual effort during the entire autumn.

3. It will awaken more interest in the graphic arts,—drawing, penmanship, draughting, etc. Along with them, it will beget habits of accuracy, neatness, and attention to details, whose value will be far-reaching. The consciousness of the fact that the work will come under the eye of criticism will be a wholesome incentive to painstaking effort. The value of drawing and its general effect upon the tastes and character of the

young people, the progress that can be made by a few months' intelligent and persistent practice with the pen, enforced by the satisfaction that an attractive and tasty exhibit will bring, cannot fail to teach their own lessons.

4. It will enable us to discover the defects in our work. The Board asks that certain lines be presented. Many schools will be surprised to find that they would blush to have the outside world see much of the work they are doing, and will begin at once to improve it. As their work is compared with that of other schools in and outside the State, they will discover that much which they supposed excellent is very ordinary, and that much which they thought about perfect, is being completely eclipsed by less favored schools than their own. This awakening from the sleep of *well enough* will be a great gain to us.

5. It will show us the possibilities of the public schools as we have not yet seen them. Many of us have never been called upon to exert our strength, and hardly know what our resources are. We may have been doing a little better than our predecessors or our immediate neighbors, but have been content with that. We have known little outside our home county. Now we shall see what the bright school-masters of a continent can do under the impetus of a great occasion.

6. It will enable our patrons to see what we are accomplishing in these latter days. We hear much of the wisdom of the school-master in that earlier day, and ought to improve this opportunity to show what progress we are making. We shall have the attention of the world as never before, and it is our own fault if we fail to profit by it.

7. It will give meritorious teachers a chance to show what they are doing, and will secure them corresponding recognition. There are thousands of teachers who are working successfully in quiet fields and who are unknown to the profession in general. They deserve recognition and promotion, but lack acquaintance. This is their opportunity. If they are wise, they will improve it. This acquaintance and appreciation will not come simply to individuals, but the entire profession will rise in the estimation of our citizens, and we shall reap corresponding benefits from it.

8. It will enable us to see and study the results of the various movements of the last few years in educational work. The effect of the grading of rural schools, of the introduction of manual training, of the professional training of teachers, of longer terms of school, of changes in methods of teaching language and the natural sciences, together with many other questions, will receive most careful attention from every student of the great exhibit.

9. It will bring the Kansas schools and the Kansas school workers more nearly together. It will give them a better understanding of their needs, and will enable them to co-operate more readily with each other. As a result, we shall see a forward movement in many places, standards will be advanced, courses of study will be extended, better facilities will be provided, and a more hopeful spirit fill every school-room in the State.

10. These benefits will be permanent. All know the stimulating effect of the Centennial Exposition of 1876 on every branch of industry in our country. There was no occupation or profession which was not benefited by it. To it must be attributed in great measure the marvelous activity and growth of the United States during the past sixteen years. We may expect even more from the Columbian Exposition. In proportion to the part we take in it, so shall we reap.

In connection with all this, let us not forget the increased interest in the study of history, and particularly in the study of American history which the preparation of this exhibit will indirectly beget. Our magazines have been teeming with fresh and instructive articles on Columbus and his times. The old story has been made new by many a master hand, and this fairest gem in the crown of Columbus now becomes the center of attraction, the object of study of the school boy, the servant, the peasant, and the king. Out of this study of our origin, our development, our institutions, our resources, our responsibilities, must come a more intelligent citizenship, a more disinterested patriotism.

FINANCIAL STATEMENT.

To the Board of Directors of the Kansas Educational Exhibit of the Columbian Exposition:—

GENTLEMEN:—I beg leave to submit the following account of receipts and expenditures on account of the Educational Exhibit of Kansas to August 15th, 1892. In this, I report the contributions of cities of the third class, with the counties in which they are located. Cities of the first and second class are reported under the counties, but separately. All the payments here enumerated have been made upon order of the President and Secretary as directed by the Board. A few small accounts pending such orders are not included:—

CASH RECEIPTS.

Allen county	\$ 7 00
Humboldt	19 00
Iola	30 00
Anderson county	\$ 56 00
Garnett	2 65
Atchison county	6 00
Atchison	8 65
Barber county	125 00
Barton county	100 00
Great Bend	23 95
Bourbon county	24 50
Brown county	40 60
Hiawatha	25 13
Horton	25 13
Chase county	24 95
Cottonwood Falls	22 65
Clark county	24 95
Chautauqua county	30 00
Cloud county	16 27
Coffee county	15 00
Burlington	9 65
Cowley county	7 17
Southwest Kansas College	16
Crawford county	35 00
Girard	35 85
Dickinson county	25 00
County High School	60 85
Doniphan county	42 35
Douglas county	20 00
Lawrence	62 35
Baker University	100 00
Hesper Academy	50 08
Edwards county	125 00
Elk county	20 00
Ellis county	4 00
Ellsworth county	11 50
Ellsworth	12 50
Finney county	11 50
Garden City	18 25
Ford county	15 00
Dodge City	31 80
Garfield county	23 60
Geary county	14 10
Junction City	14 10
Graham county	8 60
Gray county	59 90
Greenwood county	2 85
Eureka	68 50
Hamilton county	3 35
Harper county	3 35
Anthony	5 50
Harvey county	43 35
Newton	43 35
Jackson county	65 00
Jefferson county	17 50
Oskaloosa	52 10
Jewell county	69 60
Mankato	14 00
Johnson county	2 50
Kearney county	13 35
Labette county	13 35
Oswego	13 35
Lane county	25 00
Leavenworth county	8 31
Lincoln county	8 31
Linn county	25 20
Logan county	29 16
Lyon county	27 45
State Normal School	27 45
McPherson county	22 45
Marion county	100 00
Marshall county	25 12
Meade county	14 25
Miami county	18 35
Paola	19 35
Mitchell county	33 31
Beloit	22 45
Girl's Industrial School	22 45
Morris county	22 45
Council Grove	100 00
Nemaha county	27 80
Neosho county	18 50
Ness county	44 00
Norton county	90 30
Osage county	7 50
Osborne county	45 00
Osborne	52 50
Ottawa county	11 50
Minneapolis	11 50
Pawnee county	29 97
Phillips county	12 00
Pottawatomie county	29 97
Pratt county	12 00
Reno county	26 86
Republic county	11 25
Rice county	26 86
Lyons	27 96
Riley county	11 25
Manhattan	20 00
State Agricultural College	49 25
	25 50
	13 05
	32 50
	10 65
	11 50
	39 14
	21 87
	4 78
	25 00
	47 19
	32 25
	30 00
	109 44



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Is also reached via the SANTA FE. Personally conducted parties leave Chicago every Saturday and Kansas City every Sunday. If you intend to go to California or Colorado you cannot afford to go before you have written for pamphlets and folders.

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CHICAGO.

GEO. T. NICHOLSON,
Gen. Pass. and Tkt. Agt.
W. J. BLACK,
Asst. Gen. Pass. and Tkt. Agt.,
TOPEKA, KAS.

Rooks county	3 85	3 85
Rush county	7 80	7 80
Russell county	6 35	6 35
Saline county	1 80	
Brookville	28 60	30 40
Scott county	15 60	15 60
Sedgwick coun'y	12 00	
Wichita	239 18	251 18
Seward county	11 50	11 50
Shawnee county	116 90	
Topeka	300 00	
State Reform School	7 50	424 40
Sheridan county	11 55	11 55
Sherman county	11 00	11 00
Smith county	9 25	9 25
Stafford county	5 00	5 00
Sumner county	4 00	4 00
Trego county	4 00	4 00
Wabaunsee county	14 00	14 00
Washington county	60 80	60 80
Wichita county	3 87	3 87
Wilson county	86 85	86 85
Woodson county	46 66	46 66
Wyandotte county	17 83	
Kansas City	50 03	
Rosedale	21 00	88 86
State Teachers' Association	200 00	200 00
Total	\$3,884 04	

DISBURSEMENTS.

Order No. 1, F. A. Lewis, Express on financial circular.....	\$ 24 16
Order No. 2, C. L. Traver, Express on financial circular.....	28 56
Order No. 3, G. W. Winans, Express on financial pro- grammes.....	26 00
Order No. 4, G. W. Crane & Co., Printing financial pro- grammes.....	115 00
Order No. 5, G. T. Fairchild, Treasurer, Stationery.....	11 20
Order No. 6, J. M. Bloss, Expense of Circular, etc.....	153 40
Order No. 7, J. M. Bloss, Expenses to Chicago.....	30 00
Order No. 8, (Outstanding)	
Order No. 9, A. W. Leech Traveling Expenses.....	21 94
Order No. 10, A. R. Taylor, Traveling Expenses, etc.....	16 40
Order No. 11, E. H. Rowland, Stationery.....	6 00
Order No. 12, G. T. Fairchild, Traveling Expenses.....	2 45
Order No. 13, (Outstanding)	
Order No. 14, A. W. Wooster, Salary and Expenses.....	312 43
Order No. 15, G. W. Crane & Co. Circulars.....	6 50
Order No. 16, G. H. Rowland, Stationery.....	7 50
Total	\$791 54

Respectfully submitted,
GEO. T. FAIRCHILD, Treasurer.

THOSE STRAW-BOARDS FOR WALL EXHIBITS

1. WEIGHT.—A bundle of boards 25 by 38 inches (this is the smallest size prepared at present by the paper companies) weighs 50 lbs. No. 40 board is of such weight that 40 sheets make a bundle; No. 35 board, 35 sheets to the bundle, etc. No. 50 board is not quite stiff enough. No. 35 or No. 40 would be better.

2. PRICE.—The Kansas Newspaper Union, of Topeka, quotes straw-boards in 10-bundle lots at

\$1.25 per bundle, cut to the desired size, 22 x 28; for the single bundle the price is \$1.50, cut as desired. Heavy white card-board of the right size, 22 x 28 inches, and weight, 10 ply, may be obtained in quantities at 7½ cents per sheet; in small lots at 10 cents.

3. PASTE.—Some of the Topeka schools are using with success, prepared carriage glue. Others, in other cities, are using photographers' starch paste very successfully. [For directions for mounting see circular.]

THE STATE NORMAL SCHOOL

ENROLLS ALMOST 1,400 PUPILS FOR THE YEAR
ENDING JUNE 9, 1892.

EIGHTY-EIGHT KANSAS COUNTIES AND SEVENTEEN STATES
AND TERRITORIES REPRESENTED.

Teachers seeking a school in which to prepare themselves more fully for their work will find unequalled opportunities at the State Normal School. Young men and women who may intend to teach can find no such facilities for acquiring an education, and for obtaining a knowledge of all that is latest and best in appliances and methods, anywhere else in the State.

Parents desiring a school in which their children will receive a liberal education and at the same time become thoroughly fitted for the honorable profession of teaching, are reminded that it can be accomplished here with less expense than at any other school in Kansas.

Railroad fare in excess of \$3 is refunded to all Kansas students.

The diploma is a life certificate to teach in Kansas.

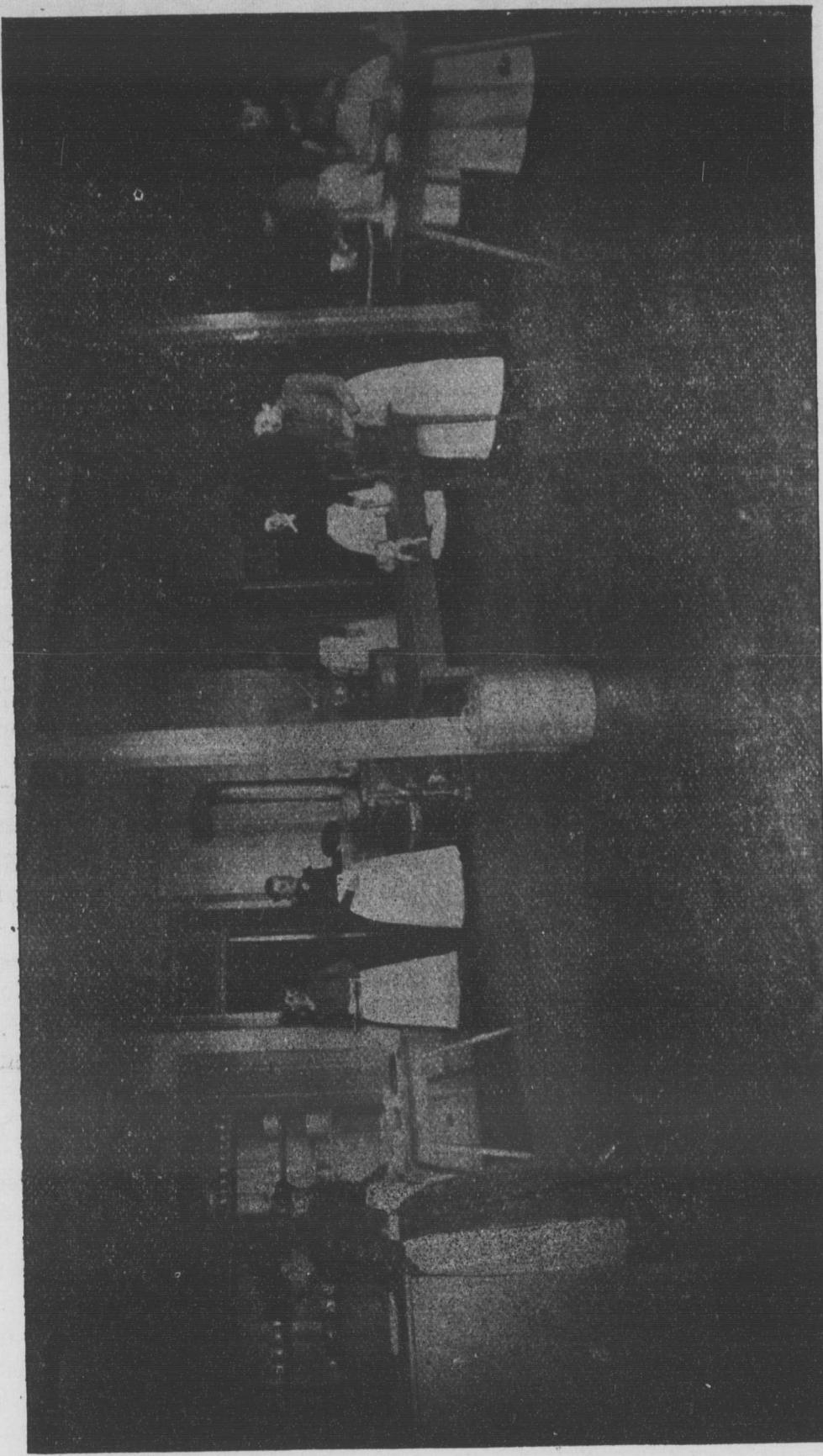
REMEMBER, that in building, in equipment, in the ability of its Faculty, in the enthusiasm of its students, in the thoroughness of its work, the school now stands recognized as one of the best in the West, and as most worthy the confidence and the patronage of the good people throughout the State.

For Catalogue and circulars, address

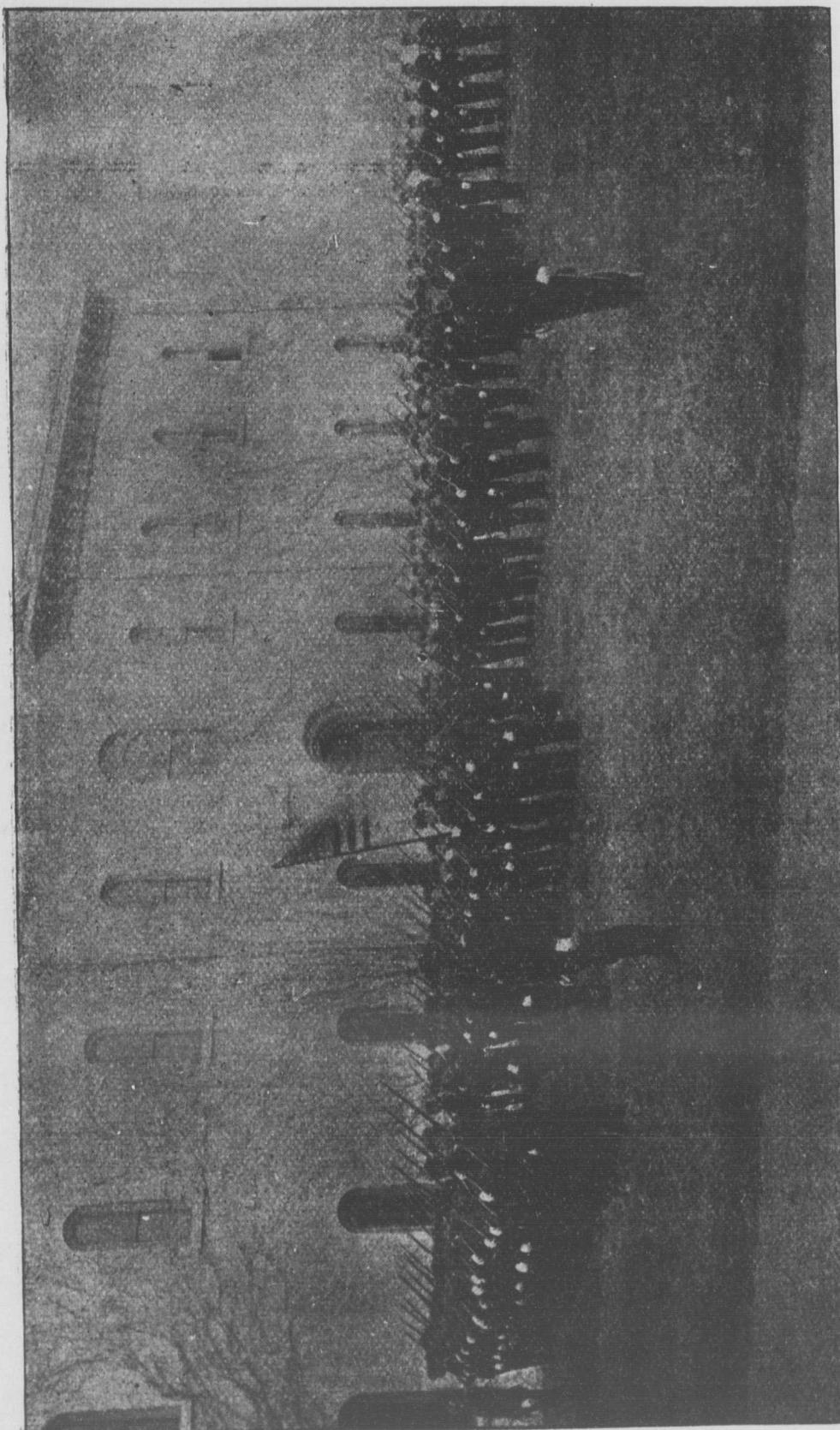
A. R. TAYLOR, President,
Emporia, Kansas.



KANSAS STATE AGRICULTURAL COLLEGE—SEWING DEPARTMENT.



KANSAS STATE AGRICULTURAL COLLEGE—KITCHEN LABORATORY.



KANSAS STATE AGRICULTURAL COLLEGE—BATTALION.



KANSAS STATE AGRICULTURAL COLLEGE—PRINTING DEPARTMENT.

CALENDAR.

1892-93.
 Fall Term—September 15th to December 23rd.
 Winter Term—January 8th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Commencement.
 1893-94.
 Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold *at par or less* without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Send for a catalogue.

To all graduates and former students: Let the INDUSTRIALIST hear from you.

The Fall term opens September 15th. Examinations for admission begin at 9 o'clock on the 14th.

Six hundred feet of two-inch pipe is being added to the water system, to be used in irrigating the gardens.

Janitor McCreary's family have moved into the Moses house near the south entrance to the College grounds.

The class letter of the Class of '91 is in course of publication by H. B. Gilstrap, a member, at Chandler, Oklahoma.

Visitors are arriving at the College almost every day, the majority of them seeking information concerning boarding places for new students.

The liberal application of water during the short drouth of July and August, followed by the recent rains, has kept the lawns in fairly good condition.

Another shed is being built in the rear of Mechanics' Hall for the brass foundry, which has to be moved from the iron shop to make room for eight more forges.

Our Kansas newspapers have in the past few weeks testified to their appreciation of the College in many columns of kind words, for which the officers of the institution are under lasting obligations.

The examination of candidates for State certificates will be held at the College next week, from the 22nd to the 26th inclusive, under the direction of President Fairchild, a member of the State Board of Education.

G. L. Clothier, '92, has been elected teacher in the Garfield School, at Clay Center. His ambition leads him also to offer his services as County Superintendent to Wabaunsee County through the medium of the People's Party.

This edition of the INDUSTRIALIST somewhat exceeds 12,000 copies, which are sent to every "corner" of Kansas, while the middle portion of the State is not neglected. The illustrations show enough of College objects and equipment to render little text necessary, even were there room for it. The "Columbian Supplement" should prove of great interest and value to educators who desire the complete success of the State's educational exhibit at the World's Fair.

Mrs. Nellie Kedzie, of Manhattan, Professor of Domestic Science in the State Agricultural College, won the plaudits of the women by her pleasing talk on "Industrial Education"—not a note, just an off-hand speech full of instructive thoughts so forcibly put that many a woman went home thinking "why not have more of this hand education in our public schools and less torment for the overworked mind? Drop some 'extras' and teach children to do something with the hand as well as the head."—*Assembly Herald, Ottawa Chautauqua*.

The following list of assistants for the College year 1891-92 should have been published earlier, but was overlooked: Minnie Reed, Geography and English; Judd N. Bridgman, Mathematics; Lottie Short, Household Economy; George L. Clothier, Horticulture; Henry C. Cobb, Mineralogy; Albert Dickens, Horticulture; J. N. Harner, Agriculture; Charles P. Hartley, Horticulture; Robert A. McIlvaine, Agriculture; Elias W. Reed, Mineralogy; Arthur D. Rice, Agriculture and English; John D. Riddell, Surveying; Fred C. Sears, Horticulture; William E. Smith, Horticulture; Walter P. Tucker, Printing; Robert L. Wallis, Agriculture; George W. Wildin, Wood-work and Surveying.

GRADUATES AND STUDENTS

Marie Senn, '91, has organized a cooking school at Enterprise.

F. A. Waugh, '91, is spending a few weeks in the Botanical Department.

Another son has arrived in the household of H. M. Cottrell, '84, at Rhinecliff, N. Y.

W. E. Whaley, '86, is a candidate for nomination on the Republican ticket as Attorney for Riley County.

H. W. Stone, '92, Secretary of the Atchison Y. M. C. A., is the Prohibition candidate for Secretary of State.

Jno. H. Calvin, '84, is mentioned as a possible candidate for District Judge on the Republican ticket in Shawnee County.

E. I. Washington, Second-year in 1891-2, will attend the Westminster Presbyterian College, at Fulton, Mo., the coming year.

D. C. McDowell and C. A. Campbell, '91, will attend the State University this year as special students in Latin and Greek.

A. B. Kimball, '89, is elected President, and Callie Conwell, '91, Secretary of the Riley County Educational Association.

Maude F. Sayers, '89, is a member of the Natural Science Committee of the Social Science Club of Kansas and Western Missouri.

Hon. W. D. Gilbert, '74, an Atchison lawyer, was Chairman of the Committee on Resolutions at the Republican Congressional Convention at Seneca.

M. F. Hulett, Fourth-year, had the misfortune to lose his pocket-book, containing a considerable sum of money and his trunk check, while visiting recently at Eskridge.

H. W. Jones, '88, has returned from Denton, Texas, where he taught last year in a private college, and will, during the coming school year, hold the office of Principal in the Alma schools.

Lillie B. Bridgman, '86, contributes to the August *Overland Monthly* an interesting story of "The Undoing of David Lemwell." Miss Bridgman is now a student at Berkeley (Cal.) University.

K. C. Davis, '91, having just finished a year's study at the Kansas State Normal School, has been elected Principal of Schools at Austin, Minn. He spent a few hours at the College last week en route.

The Lake Arthur (La.) *Herald*, published by P. M. Kokanour, Third-year in 1885-6, is authority for the statement that W. M. Wright, '87, is to become a rice farmer to the extent of a hundred acres.

O. L. Utter, '88, is visiting with such College friends as he finds here during vacation. He was last year Superintendent of Schools at Garden City, but his plans for the coming year are not perfected.

E. F. Nichols, '88, has refused a Professorship in Colgate University, a denominational (Baptist) institution, to continue his duties as Assistant in Physics at Cornell, where he has pursued studies for several years past.

SYNOPSIS OF THE WEATHER FOR JUNE AND JULY.

The following table contains the meteorological elements for June and July compared with the mean of these months for thirty-five years. The third and fourth lines contain the extremes during this period. It will be noticed that the rainfall for June 1892, is the least on the records, while the July rainfall was 0.8 inches below normal. The mean temperature for June was 0.71° above normal, and for July, 1.06° below:—

Number of Rains	Rain in Inches	Prevailing Wind	Mean Temperature	Maximum Temperature	Minimum Temperature	Mean Barometer	Maximum Barometer	Minimum Barometer
June, 1892	2	0.32	SW	74.32	102	43	28.75	29.08 28.48
Mean	8	4.38	SW	73.61	97	50	28.72	29.05 28.42
Extreme Max.	13	9.58		80.29	109	66	29.09	29.50 28.75
Extreme Min.	2	0.32		66.18	86	37	28.53	28.75 28.17
July, 1892								
Mean	5	3.88	SW	77.32	106	50	28.86	29.15 28.52
Extreme Max.	14	12.71		86.87	115	67	29.08	29.28 28.88
Extreme Min.	2	0.18		70.81	92	40	28.54	28.76 28.33

KANSAS

State Agricultural College

THE COLLEGE YEAR
1892-3

Promises a LARGER ATTENDANCE than ever of Farmers' Sons and Daughters from the country schools.

BETTER FACILITIES

Are offered in this College than elsewhere for genuine training in the ARTS and SCIENCES together. The industries of life form the basis of the course. For these reasons it is the

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JULIA R. PEARCE, B. Sc., Assistant Librarian.

E. ADA LITTLE, B. Sc., Assistant in Sewing.

GRACE M. CLARK, B. Sc., Stenographer in Executive Offices.

W. M. BAXTER, Foreman of Greenhouse.

W. L. HOUSE, Foreman of Carpenter Shop.

E. HARROLD, Foreman of Ironshop.

C. A. GUNDAKER, Engineer.

A. C. MC CREAMY, Janitor.

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W. M. SHELTON, Foreman of Farm.

F. C. BURTIS, B. Sc., Agriculture.

M. A. CARLETON, B. Sc., Botany.

THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, AUGUST 27, 1892.

NUMBER 2.

THE INDUSTRIALIST.

Historical Society
BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Hon. R. P. KELLEY, Eureka, Greenwood County.
Pres. GEO. T. FAIRCHILD, (ex officio) Secretary.
I. D. GRAHAM, Manhattan, Assistant Secretary.

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MISS JOSIE C. HARPER,
Instructor in Mathematics.
MISS ALICE RUPP,
Instructor in English.

ASSISTANTS AND FOREMEN.

C. M. BREESE, M. Sc., Assistant in Chemistry.
JULIA R. PEARCE, B. Sc., Assistant Librarian.
E. ADA LITTLE, B. Sc., Assistant in Sewing.
GRACE M. CLARK, B. Sc., Stenographer in Executive Offices.
WM. BAXTER, Foreman of Greenhouse.
W. L. HOUSE, Foreman of Carpenter Shop.
E. HARROLD, Foreman of Ironshop.
C. A. GUNDAKER, Engineer.
A. C. MCCREARY, Janitor.

ASSISTANTS IN EXPERIMENT STATION.

F. A. MARLATT, B. Sc., Entomology.
WM. SHELTON, Foreman of Farm.
F. C. BURTIS, B. Sc., Agriculture.
M. A. CARLETON, B. Sc., Botany.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

THE COMING FODDER PLANT.

BY PROF. O. C. GEORGESON.

WE are just now, August 24th, harvesting a portion of the Soy bean crop, and putting it in a small silo with a view to studying its behavior and feeding value as silage later on. We have four varieties: of these, two are so far advanced towards maturity that the leaves have begun to fall, while the other two are later, the seeds being only about half grown. They are grown in rows 32 inches apart, but at this stage the plants fill out the space between the rows almost completely. The soil is a loam of only fair quality, has not been manured, and has a pronounced slope to the south. The yield of the green plants is about 5½ tons per acre.

The crop was planted May 23 and 24, and this growth has therefore been made in exactly three months. Its feeding value is of the best. It compares favorably with clover and alfalfa in nutritive qualities, and the ripe beans are only excelled by oil meal. Cattle and hogs eat all parts of the plant greedily; even the dry bean straw, thrown into the yard after the beans were threshed out, was all eaten by the cattle. But perhaps the quality which will be most highly appreciated by Kansas farmers is the ability of this bean to withstand drouth. At no time since we began to grow this plant in 1890 has it suffered from the dry weather; even the very severe drouth of that year failed to affect it disastrously. What other plant have we which possesses all these qualities; which will go through our trying drouths unscathed; whose nutritive qualities rank with the very best; which is freely eaten by stock; which will in three months produce 5½ tons of green feed, or about 3 tons of hay to the acre on unmanured land, and which then can be cleared off in time for wheat, and will leave the ground in excellent shape for the drill without plowing? This is what the Soy bean will do. I know no other plant of which the same can be said. When these qualities become known, it must forge its way to the front and take a leading place among our fodder plants. This is the conclusion I have come to after growing it three years here at the College. I would be glad to get the opinion of those who have tried the Soy bean this year, especially in places where drouth was felt severely, and I ask those who received seed beans from the Station last winter, if they happen to see this, to kindly write me their opinion of this promising fodder plant, together with the culture it has received.

THE KANSAS STATE AGRICULTURAL COLLEGE.

[First annual report of the President under act of Congress, approved August 30th, 1892.]

The Kansas State Agricultural College owes its location and initiative momentum to the pioneers of Manhattan, who, unlike the first settlers of many western towns, were people of education and culture. As early as 1857, when the buffaloes were yet numerous in the northern part of Riley county, and less than three summers had bleached the roof of the first house west of the Blue River, an association was formed to build a college in or near Manhattan, to be under the control of the Methodist Episcopal Church of Kansas, and to be called "Bluemont Central College."

The charter was approved February 9th, 1858. It provided for the establishment of a classical college, but contained the following, in the light of its future history, interesting section:—

"The said association shall have power and authority to establish, in addition to the Literary Department of Arts and Sciences, an Agricultural Department, with separate professors, to test soils,

experiment in the raising of crops, the cultivation of trees, etc., upon a farm set apart for the purpose, so as to bring out to the utmost practical results the agricultural advantages of Kansas, especially the capabilities of the high prairie lands."

Kansas was among the first of the galaxy of States to accept the endowment proffered by the general Government in the Land Grant Act of July 2nd, 1862. The resolution of the Legislature to "agree and obligate itself to comply with all the provisions of said act" was approved by Governor Carney, February 3rd, 1863, and the resolution to accept the offer of the trustees of Bluemont Central College in "fee simple" February 16th of the same year. Rev. Joseph Denison, one of the chief promoters of Bluemont Central College, became President of the Kansas State Agricultural College.

During the first ten years, the College grew slowly. Up to 1873, but fifteen students had graduated. The reasons must be looked for in many directions: the newness of the State, the western location of Manhattan, the inadequacy of means, the founding of rival literary institutions at Lawrence, Baldwin, Topeka, etc., and especially the fact that industrial education was in its experimental stage. The introduction of obligatory daily manual labor as an educational factor was not attempted. Aside from occasional lectures on general topics, little work was done for agriculture and the mechanic arts, and the increasing frequent demands for an institution that would educate towards instead of away from the farm and the workshop were met with uncertain promises.

THE REORGANIZATION.

In accordance with an act of the Legislature reconstructing the governments of the several State institutions, approved March 6th, 1873, Governor Osborne in the spring of that year appointed a new Board. Soon afterwards President Denison resigned, and the vacancy was filled by the election of Rev. John A. Anderson of Junction City. The result was a radical change in the policy of the institution. The Board of Regents discontinued the school of literature and organized those of agriculture and the mechanic arts. Three new professorships were established; namely, Botany and Entomology, Chemistry and Physics, and Mathematics. Workshops in iron and wood, a printing office, a telegraph office, a kitchen laboratory, and a sewing room were equipped and provided with instructors, and fifty minutes of educational manual labor was added to the daily work of every student. Three years later, the course of study was reduced to four years; i. e., the preparatory course of study was abolished, the teaching of Butler's Analogy, Latin, German, and French discontinued, and the requirements for admission lowered so as to connect the institution directly with the better grade of public schools.

In 1879, President Anderson took a seat in Congress, and Prof. G. T. Fairchild, for fifteen years connected with the Michigan Agricultural College, was elected to the presidency of this College. Without radical changes in the policy of the College, its efficiency was immediately increased. The collegiate year was divided into three nearly equal terms, of fourteen, twelve, and eleven weeks respectively, instead of two unequal terms as before. The course was strengthened by adding a term of Psychology to the work of the fourth, and English Literature and Engineering to the work of the third year; by rearrangement of studies to logical connection; by systematic plans for connecting practice with theory;

by introduction of stronger courses in place of elementary ones; and by more definite classification of students, while the system of industrial training was broadened by distinct arrangement in shops, farm and garden, kitchen laboratory, dairy, and sewing rooms.

The general advancement during the past twelve years is best shown as follows:—

	1879.	1891.
Members of Faculty	11	18
Assistants	1	11
Student Assistants	1	8
Post graduate students	0	12
Graduating class	9	52
Total graduates	56	284
Students	207	593
Age of students, years	18.8	19.9
Counties represented	40	73
States represented	8	20
Productive endowment	\$220,329 36	\$501,426 33
Annual Income, sources	20,402 64	56,152 37
Value of grounds and buildings	60,000 00	165,000 00
Value of apparatus, etc.	25,000 00	120,000 00
Total inventory	85,000 00	285,000 00
Library, bound volumes	2,300	11,035

The present condition of the College is sufficiently indicated by the above comparison, and its prospects in such a State as Kansas are of the best. The added shop facilities provided by the Legislature of 1891, and the improved equipment afforded under act of Congress in August, 1890, have given a special impetus to training in mechanic arts; but the added interest from a larger corps of instructors in agriculture and related sciences keeps the equilibrium good. This College, unlike most of the land-grant colleges, does not separate its courses in agriculture and the mechanic arts until the close of a four-years' course in general training, mental and manual, for both. All young men are required to take training in both lines of work until their mature judgment may decide the best of their powers. All young women have training in Household Economy, Horticulture, etc., with the same course in sciences, mathematics, and English given to young men. The result is a real education along the lines of real industry, rather than a strictly technical course. The technical course is provided for in post-graduate study for a master's degree.

Students are received upon diploma from county courses approved by the Faculty, upon certificate from City Superintendents of admission to the High Schools, and upon certificate to teach, provided the passing grade is seventy per cent, and upon examination in the common branches of County schools to complete arithmetic, grammar, geography, and U. S. history. In this way direct connection between the County schools and the College is maintained, and the sons and daughters of farmers may come directly from home to College. Over seventy per cent of the students are from farm homes.

The general industrial trend of the College is shown by the following summary of occupations of graduates prior to the present year:—

During the twenty-eight years of its existence the College has received over three thousand students, about a third of whom were young women. Most of them have come from farmers' homes, and after from three months to three years of study, have gone back to such homes without graduation.

The number of graduates up to 1890 is 232, of whom 73 are women. Graduates previous to 1877 pursued, with two exceptions, a classical course, and received the degree of Bachelor of Arts. Since 1877, all have received the degree of Bachelor of Science after a four-years' course in the sciences, with good English training.

Of the 159 men, 5 are deceased, and the remainder are reported in the following occupations:—

Farmers	24
Fruit-growers and nurserymen	8
Stock-raisers	3
Assistants in Agricultural Experiment Stations	5
Assistants in U. S. Department of Agriculture	3

Editor of agricultural paper	2
Teachers and students of special sciences	9
Veterinary surgeon	1
Mechanics	5
Civil, electrical, and mechanical engineers	14
Contractors and builders	2
Architects and draughtsmen	3
General business men	16
Merchants	8
Printers	3
Photographer	1
Superintendents of public schools	7
Teachers of public schools	15
Students in other institutions	2
Officers in army	2
Observers in Weather Service	2
Physicians and students of medicine	4
Druggists	2
Dentists	2
Editors	5
Ministers	3
Lawyers and students of law	17
Officials and official clerks	4
Total	171
In two occupations	17
	154

Of the 73 women, 3 are deceased, and the remainder are occupied as follows:—

Housewives	31
At home	4
Teachers in public schools	15
Teachers and students of special sciences	8
Teachers of music	2
Teachers of art	3
Clerks or stenographers	3
Printer	1
Milliner and dressmaker	1
Assistant librarian	1
Hospital nurse	1
Total	70

The College has held each year since 1881, from six to ten farmers' institutes in various parts of the State, where the farmers of the community have been willing to join with the Faculty in maintaining them. These have been a fruitful source of interest and improvement in agriculture through nearly half the counties of the State. There is hope that the State will soon make provision for extending such advantages more widely.

The work in experimental agriculture at this College, has been continued since 1873, when the farm was stocked with improved cattle, and the professorship in agriculture was made the most important in the list. Reports of the work were made from time to time in connection with the annual or biennial reports to the Governor, and in the INDUSTRIALIST, a weekly record of current events at the College edited by the Faculty.

When the Experiment Station fund was made available in 1888, the organization was made definite as a department of the College, while the Professors of Agriculture, Horticulture, and related sciences were made the controlling Council, and the Secretary of the College is ex-officio Secretary of the Council.

During the past year, experiments in field crops and horticultural products have been largely for test of varieties to secure adaptation to climatic conditions, though much has been done with methods of seeding and culture, development of sugar in sorghum, diseases of plants and animals, and prevention of insect depredations. At present an extensive experiment in sugar beet culture, undertaken in nearly one hundred localities, is expected to aid much toward settling the capabilities of the State for sugar making. Full reports of complete investigations, and of progress, have been published as indicated in the following list:—

BULLETINS.

No. 1, April, '88, "Organization, Equipment, and Aims."

No. 2, April, '88, "Experience with Cultivated Grasses and Clovers."

No. 3, June, '88, "Life History of Two Orchard Pests."

No. 4, September, '88, "Experiments with Wheat."

No. 5, December, '88, "Sorghum, and Sorghum Blight."

No. 6, July, '89, "Silos and Ensilage."

No. 7, August, '89, "Experiments with Wheat."

No. 8, October, '89, "Preliminary Report on Smut in Oats."

No. 9, December, '89, "Experiment in Pig-feeding."

No. 10, May, '90, "Notes on Conifers for Kansas Planters."

No. 11, July, '90, "Experiments with Wheat."

No. 12, August, '90, "Preliminary Experiments with Fungicides for Stinking Smut of Wheat."

No. 13, August '90, "Experiments with Oats."

No. 14, December, '90, "Winter Protection of Peach Trees, and Notes on Grapes."

No. 15, December, '90, "Additional Experiments and Observations on Oat Smut made in 1890."

No. 16, December, '90, "Experiments with Sorghum and Sugar Beets."

No. 17, December, '90, "Crossed varieties of Corn, Second and Third year."

No. 18, December, '90, "Experiments with Forage Plants."

No. 19, December, '90, "Germination of Weeviled Peas; Garden Notes on Potatoes, Beans, and Cabbage."

No. 20, August, '91, "Experiments with Wheat."

No. 21, August, '91, "Fungicides for Stinking Smut of Wheat."

No. 22, August, '91, "Smut of Oats in 1891. Fungicides for Loose Smut of Wheat. Spraying to Prevent Wheat Rust."

REPORT FOR 1888—CONTENTS.

Waste of Manure in Summering Manures in the Yard.

Experiments in the Corn Field.

Experiments with Wheat.

Forage Crops.

The Milk and Butter Produce as Influenced by Feeding.

The pressure of Ensilage on the Walls of the Silo.

Relation of Rainfall to the Corn Crop.

Shrinkage of Hay in the Mow.

A Comparison of Varieties of Sorghum.

A Test of the Keeping Qualities of Sorghum.

An Examination of Individual Stalks of Sorghum with a View to Improve the Plant.

A Trial of Fertilizers on Sorghum.

A New Method of Milk Analysis for the Use of Dairymen.

Spraying in the Apple Orchard.

Observations upon Injurious Insects.

Trials of Varieties of Potatoes.

Trials of Varieties of Peas.

Trials of Varieties of Tomatoes.

Sorghum Blight.

Hackberry Knot.

Experiments in Fertilization of Varieties of Corn.

Germination of Weed Seeds.

The Fungus Parasites of Weeds.

REPORT FOR 1889—CONTENTS.

Experiments with Corn, Wheat, and Forage Plants.

Silos and Ensilage.

Pig-Feeding Experiment.

Pigs from Mature and Immature Parents.

Work upon Sorghum.

Analysis of Feeding-Stuffs.

Composition of Corn at Different Stages of Growth.

Ammonia and Nitric Acid in Atmospheric Waters.

Comparative Trials of Garden Beans, of Peas, of Potatoes, of Tomatoes.

Some Insects Injurious to the Bean.

Loose Smuts of Cereals.

Crossing Varieties of Corn.

Receptivity of Corn Silk.

REPORTS FOR 1890—CONTENTS.

Summary of Bulletin, 10 to 19, with index, and outline of other work undertaken.

These publications have been sent to seven

[Continued on page 12.]

CALENDAR.

1892-93.
Fall Term—September 15th to December 23rd.
Winter Term—January 8th to March 31st.
Spring Term—April 3rd to June 14th.
June 14th, Commencement.
1893-94.
Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

A son was born a month ago to Prof. and Mrs. Walters.

Dr. Mayo visited Ford county recently to study the effects of loco on horses and cattle.

Prof. Olin returned from the East last week. He attended the meeting of the National Association at Saratoga, and visited several Eastern States and the seashore.

Prof. Brown, several weeks since, sent College friends commencement programs of the Kansas Conservatory of Music at Leavenworth, of which he is President.

Prof. and Mrs. Hood have this week an unexpected but agreeable visit from the Professor's father and mother, Mr. and Mrs. H. B. Hood, of Terre Haute, Ind.

Prof. Hitchcock has made several collecting trips to different portions of the State, and reports the Botanical herbarium the richer and himself the wiser therefor.

Capt. Bolton visited relatives in Tennessee during July, and is now in camp in northwestern Colorado in company of Dr. Crise and Mr. Wharton, of Manhattan.

Our six and a half acres of soy beans are making a promising show for a crop. Professor Georgeson believes the bean destined to become an important agricultural plant.

The political conventions of the past two weeks have brought many interested visitors to the College, all of whom expressed a desire for more extended acquaintance with its workings.

Supt. G. W. Kendricks, of Clay Center, spent a part of the week at the College in the State Examination. He expressed great surprise at the beauty of the College grounds and the extent of the equipment.

Secretary and Mrs. Graham spent a few days in Menoken this week, visiting Mrs. Graham's mother and the old home. Secy. Graham's mother and sister are spending a few days with them since their return.

Corn suffered considerably by the dry weather of two weeks ago, the damage being confined chiefly, however, to the ensilage varieties, which were planted quite thick. These sorts will have but few ears, and those of inferior quality.

The wheat has been threshed, and nearly all sold for seed. There is a great demand for the Currell variety, and but few bushels are left. Preparations are being made for next year's crop, and a few experimental plats are already seeded.

Pres. Fairchild finds his time fully occupied by routine work in preparation for the opening of the College year in September. He has lectured before teachers' institutes at Holton and Russell, and at the Overbrook Grange Anniversary.

The College has a few fine Shorthorn bulls which will be sold reasonably. Also a Hereford and a Holstein-Friesian bull. They are all animals of much individual merit and of the best breeding. They can be sold cheaper now than in the spring. Professor Georgeson will answer all enquiries concerning them.

Prof. N. S. Mayo, Veterinary Surgeon of the State Agricultural College at Manhattan, is here for the purpose of examining "locoed" stock. He visited the farm of Rev. Mr. Morrison, who has lost several head of stock this summer on account of the loco, and has two or three more that will soon die from the effects of it.—*Cimarron New West*.

Prof. Faillyer has made several collecting expeditions this summer in the interests of a worthy

trio—the World's Fair, the State Board of Agriculture, and the State Agricultural College. Mineral deposits are the subjects of his search, which thus far extends to Leavenworth, Nemaha, Marshall, and Pottawatomie counties in the northeast; Washington, Logan, and Thomas in the northwest; Wilson, Montgomery, Marion, Butler Cowley, Pratt, Kingman, and Reno in the south, with a trip to Woodson, Bourbon, Cherokee, and Labette counties to follow soon. Fair collections have been made in most sections visited, and specimens in duplicate are arriving every few days. The details of the Professor's work will be set forth in his contribution to the Biennial Report of the State Board of Agriculture, soon to be published. Prof. Willard has also made geological collections recently in Wabaunsee, Sumner, and Cowley counties.

GRADUATES AND STUDENTS

F. C. Sears, '91, visits home for a few days.

Lora Waters, '88, will take post-graduate studies this year.

Julia Pearce, '90, has returned from a month's visit to the Atlantic Coast.

D. W. Working, '88, is editor of the Longmont (Colorado) *Times*.

J. S. Searle, First-year in 1886, is now selling goods in El Reno, Oklahoma.

Mrs. Anna Fairchild-White, '91, is recovering from a severe and protracted illness.

Fred Knostman, student in 1889-90, has gone to Chicago to clerk in a clothing store.

F. A. Hutto, '85, reports success in his chosen profession of law at Stillwater, Oklahome.

W. J. McLaughlin, '87, is attending the State Examination held at the College this week.

Mayme Houghton, '91, and Jessie M. Stearns, Third-year in 1891-92, will teach in the Randolph schools.

Ella S. Child, '77, for a long time teacher in Manhattan, goes to Holdredge, Neb., as Assistant Principal of Schools.

John Davis, '90, is Principal of the Wakefield schools for the coming year. He completed the Normal School course last year.

S. I. Borton, '90, writes of a successful season of farming near Madison, and makes inquiries concerning prices of College live stock.

Mr. John T. Copley, Third-year in 1880-1, missionary to the Omaha Indians, visited the College yesterday to arrange for his children's year in College.

W. W. Hutto, '91, is chosen Professor of English Literature in Oklahoma Agricultural College at Stillwater, with a salary of \$1,200 for the first year.

Miss E. Ada Little, '86, accepts a call to the place of Superintendent of Sewing Department in Utah Agricultural College, and will begin her work there September 2nd.

C. R. Hutchings, Fourth-year, was called home on Saturday last by a telegram announcing the death of his sister who, while driving over a railroad crossing, was struck by a train.

Jennie Tunnell, '91, takes up her duties as Assistant High School Principal in Manhattan on September 5th. Her sister Bessie is expected soon from California to attend College.

Lieut. E. A. Helmick, Fourth Infantry, Third-year in 1882-3, and wife, Lizzie Clark-Helmick, Second-year in 1881-2, write from Fort Sherman, Idaho, rejoicing in the birth of a son July 7th.

Miss Gertrude Coburn, '91, after a visit to eastern schools at the expense of her patrons, returns to her school of cooking and sewing in Menomonie, Wis., with new enthusiasm for the work.

David R. Jenkins, student in 1887-8, was married at Denver, August 9th, to Miss Kate B. Gordon, of Bala, Riley county, Kansas. Mr. Jenkins is publisher of the Coal Creek (Colorado) *Enterprise*.

Miss Abbie L. Marlatt, '88, Professor of Household Economy at the Utah Agricultural College returned this week to her work after a pleasant trip through eastern cities in special study of methods and facilities.

J. Frost, W. H. Edelblute, D. H. Otis, B. H. Pugh, and D. F. Wickman, all of '92, remain-

ed several weeks after Commencement to complete their desks upon which they were working during the Spring term. The completed desks were very neat pieces of workmanship.

F. A. Thackrey, student in 1890-91, came up Monday from Oklahoma for a two-weeks' visit at his home on College Hill. He will return by way of St. Louis, where he will take the civil service examination.—*Republic*.

Frank W. Coe, Third-year in 1888-9, is visiting with Manhattan friends. He finished the course at West Point in July, and was appointed Lieutenant in the First Artillery and assigned to duty in New York harbor. He expects to be transferred soon to Fort Reno, Oklahoma.

J. J. Johnson, student last year, writes from Success, Kansas, enclosing a newspaper clipping announcing the death of Aaron Walters, '88, as follows: "Died, July 36, at Kansas City, Aaron Walters, aged thirty years. The deceased was well known and highly respected in this locality, having come here about fourteen years ago. He was a graduate of Manhattan Agricultural College, and afterwards studied law and was admitted to the bar. He was a member of the I. O. O. F. Buried at Luray, July 28th. Funeral services were conducted by Rev. Mr. Thompson. His family have the sympathy of the entire community in their loss."

BOARD MEETING.

All the members were present at the meeting on Tuesday, August 2nd, Regents Chaffee and Kelley having spent the morning in looking over the College and farm.

Beyond the ordinary routine of auditing accounts various matters of detail were considered, and the following expenditures authorized: For Station estimates, apparatus, and labor, according to recommendation of the Council, \$1,500; for extension of water pipes through the Experiment Station grounds, \$100; for drawing tables, \$50; for tools and apparatus in wood and iron shops, \$700; for completing uniforms in Military Department, \$210; for material to be used in construction of dynamo and galvanometer for Department of Physics, \$60; for museum jars and alcohol, \$45; for desks, Chemical Department, \$20; for transfer of herbarium to new quarters, and the reconstruction of tables in Botanical Laboratory, \$350.

Authority was given for construction of a series of propagating pits for instruction in horticulture and floriculture, provided the expenditure is decided by United States authorities to be a legitimate use of funds under act of 1890.

The President was authorized to condense into a single biennial report the annual reports for 1891 and 1892, with the expectation of printing with it a history of the College.

The request from the College Hill School District that an acre of ground from the northeast corner of the Old College Place be set apart for a school-house having been presented, it was declared the sense of the Board that it has no authority to grant land for such purposes by either deed or lease.

The Secretary was directed to convey to Colonel and Mrs. J. B. Anderson the hearty thanks of the Board for the excellent life-size photograph of Ex-President John A. Anderson, recently presented.

Authority was given for the extension of lease upon the Shumway land held for the past two years.

The question of exhibit at the State Fair this fall was left to the decision of the Experiment Station Council.

Pres. Fairchild and Prof. Georgeson were appointed delegates to the Association of American Agricultural Colleges and Experiment Stations to represent respectively the College and the Station.

Upon recommendation of the Committee on Employees, the following appointments were made: Miss Sue D. Hoaglin,* of Holton, Kansas, Assistant in English, at a salary of \$1,000; Miss Josie C. Harper, of Manhattan, Assistant in Mathematics, at \$1,000; Miss Julia R. Pearce, of Manhattan, Assistant Librarian, at \$600.

The President was authorized to secure assistance in the Executive Department at an expense not to exceed \$40 per month.

The Board adjourned to meet at 9 A. M. of Thursday, November 10.

*Miss Hoaglin declined the position, to return to the State Normal School where she taught last year, and by authority of the Committee on Employees, Miss Alice Rupp, of Topeka, has been appointed to the place.

THE KANSAS STATE AGRICULTURAL COLLEGE.

[Continued from page 10.]

hundred newspapers of the State and to nearly six thousand farmers who have applied for them.

The expenditure of the fifteen thousand dollars during the year ending June 30th, was distributed as follows:—

Salaries.....	\$10,288.12
Laborers.....	2,364.31
Apparatus.....	420.67
Supplies.....	533.77
Printing.....	767.95
Stationery.....	18.30
Postage.....	13.40
Library.....	226.13
Stock.....	10.00
Traveling Expenses.....	200.27
Freight.....	149.18
Photography.....	.90
Water supply.....	15.00
	\$15,000.00

This has been distributed to several departments of investigation as follows:—

Farm Department.....	\$4,488.40
Horticultural and Entomological Department.....	3,270.24
Chemical Department.....	2,592.12
Botanical Department.....	2,183.37
Veterinary Department.....	498.46
General Office, etc.	1,967.41
	\$15,000.00

The adjustment of the Station work to the class work in the College has so far been very satisfactory both in method and in results. The work has been well received throughout the State, and will meet all wants better from year to year.

From the foregoing report of progress, it will be seen that the main line of development has been toward a more perfect meeting of the popular need for actual education in line with the industrial arts. While agriculture takes the lead of all industries in our State, this College must wisely keep its training and development in sympathy with the art of tilling the soil. All its work therefore, including the course for young women, looks toward a development of the farming interests of the State in sympathy with growth in all directions.

Specific statements as to financial matters and attendance are furnished upon blanks provided for the purpose, as requested. A more complete report of all transactions in the several departments will be published as required by the laws of the State with the biennial report to the Governor, and details of experiments will be found in the bulletins and reports of the Station required under the law of 1887.

Respectfully submitted.

GEO. T. FAIRCHILD,
President.

August 30th, 1891.

THE EDUCATION WE NEED.

Alice A. Johnson, Dowagiac, Mich., writes, in *Orange Judd Farmer*: "The education we need is the one insuring thoroughness in all undertakings, ability to grasp all sides of a question, readiness to devise means of overcoming obstacles, promptness of decision and sympathetic thought, fullness for others. Where can it be obtained? In that school or college where the bodily, mental, and moral wants are equally recognized and most carefully met. Consider these things, and do not rely too much upon the large number of students registered, or the fame of the teachers in the literary or scientific world, unless you know they look upon young men and women as something more than embryo investigators. If your son or daughter is not over desirous of having the advantage of a college education, be very careful as to moral atmosphere and oversight. The close student will escape many evils that will harass the careless one. Where economy, involving much self denial, is necessary to send the child to college, let the student share it. He will realize more fully what his training is worth. If you have money to pay your expenses, by living and dressing plainly, very plainly, take the year's study now. If you wait hoping to have things more to your liking, you may entirely lose the opportunity. Have, if possible, at least a year's college work before devoting yourself to a specialty or entering a professional school. We need professional men, specialists, with broader views, more general culture. The wider one's available information, the more he can do for himself and others. Consider all these things in choosing a school or college for yourself or for another."

"STUDENTS' WORK" AT A NATIONAL CONVENTION.

There is an interesting bit of history connected with the gavel which Chairman McKinley used at the Republican Convention last June in Minneapolis. The boys of the Manual Training Department of the East Side High School conceived the idea of presenting a specimen of their handiwork to be used by the convention officers. They accordingly made a handsome and elaborately designed gavel. The oak of which it was made came from the original flagstaff at Fort Snelling, said to be the first erected in the State. The handle was ornamented with sheaves of wheat, representing the staple product of Minnesota and clasping the head, upon which were carved the three mottoes of the Republican party—Protection, Honest Money, Reciprocity. By vote of the pupils, the gavel was formally presented by Dr. J. E. Bradley, who so admirably introduced and fostered the Manual Training Department in the Minneapolis High Schools. This commendable enterprise on the part of the scholars roused the rivalry of the other High School, and they made a beautiful stand and desk to adorn the platform. After the adjournment of the Convention, the gavel found its way to the White House, and is now among the interesting and valued memorabilia of President Harrison.—*The Congregationalist*.

DANGER IN LONG SKIRTS.

Miss Octavia Bates, of Detroit, is a prominent member of the Dress Reform Committee of the Woman's Council. Miss Bates is a graduate of Michigan University, a noble and thoroughly cultured lady. No one on the street has a more unexceptional appearance. She was readily interviewed and spoke to the following purport: "The Austrian Government, by advice of its sanitary commissioners, has adopted a police regulation which forbids the trailing of any body's garments on the ground, because of the unhealthfulness of such a custom. No law would have a right to say what anybody shall wear so far as it affects the wearer, but only as it effects the interests of others. It has, however, been clearly shown that long skirts dragging on the street stir up dust, which contains dried, unhealthy sputum, and this dust is breathed into the nostrils, and so people following in the wake of the long skirts are apt to become infected. Then they carry home with them the seeds of disease and they are spread throughout the community. It is on behalf of the public health that we believe the courts will ere long legislate against long skirts."—*Union Signal*.

BROAD TIRES.

The following statement of comparative merit of broad and narrow tires, as given by a farmer, is worth attention:—

"He showed me that in the cornfield thirty bushels had been a good load with narrow tires, and he could now haul fifty bushels with greater ease. When it came to hauling stuff to market the load could, with wide tires, be increased from twenty-five to fifty per cent. This much from the farmer's standpoint. How about the commonwealth? It has been discovered that, in localities where a considerable portion of the inhabitants use the broad tires, the decreased tax keeps the road in better condition than the whole tax did when the narrow tires prevailed, and it is believed by men who are in a position to know that when broad tires are universally used the highways (all kinds, from the city pavement to the poorest dirt road) may be kept in better condition than at present with one-fourth the present cost."—*Sterling Elliott, in Good Roads*.

The farmer should be educated in order to properly understand his business; must know something of botany, as pertaining to the crops he grows, and the plants of his field; have a little understanding of chemistry, that he may know something of the character of the soil he cultivates and the grain he feeds; must, of course, understand physiology and hygiene, for his physical benefit, and must be more or less of a surgeon, for the benefit of his animals; should be a competent teacher for his children's sake, and a speaker of some ability, that he may impart to others the ideas he has gleaned. If all felt the responsibility resting upon them in this direction, there would be more thought given to furnishing of library of the farmer's home than to the furnishing of the front parlor or the tool-shed.—*Mrs. Amy Chapin, in Kansas Farmer*.

A CHANCE FOR THE BOYS.

Every young man who possibly can should attend some one of the good institutions of learning in our State. Nothing else will be such a help to him in coming life. For a poor boy, we believe the State Agricultural College at Manhattan offers the best opportunities. There is no tuition to pay there, and there is more or less work that an active, ambitious boy can do and get paid for by the hour. All branches of learning are taught except the languages. The College is richly endowed by the State, and has fine buildings, printing office, carpenter shop, blacksmith shop, library, laboratory, conservatory, and the farm. A young man can here secure his education, and at the same time learn to do some one thing better than a majority of men can do it. He comes out of the school with hands and mind trained to work, and he is a stronger man every way than when he went in. A boy has these great opportunities offered to him only once in a lifetime. If he lets them slip they are gone for good, and he that might have been a leader in some useful walk of life, may become a plodder, or, worse yet, an idler, tiresome to himself and useless to others. The Jewell City School is an excellent stepping stone to something higher.—*Jewell Republican*.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

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W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

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D. R. G. A. CRISTE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

D. EWEY, the photo grapher, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequalled for beauty of finish.

BOOTS AND SHOES.

R. EBAKE TICKETS given on all cash sales. For tickets amounting to \$5.00 you will be presented with one of three books, "Success," a record of the lives of noted men; "The Home Guide;" or "Compendium of Cookery." Reliable Boots, Shoes, and Rubbers. Latest styles and low prices. LESLIE H. SMITH.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

S. HULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

SHAVING PARLOR.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

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THE SPOT CASH STORE is Headquarters for Dry Goods, Novelties, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

E. B. PURCELL, owner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, SEPTEMBER 3, 1892.

NUMBER 3.

THE INDUSTRIALIST.

Historical Society
PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Loans upon school-district bonds are to be obtained from the Loan Commissioner.
Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

ACCURATE FARM EXPERIMENTS.

BY PRES. GEO. T. FAIRCHILD.

IN some respects all farming is experimental, and the results of years of experience in farming form a basis of judgment as to general principles. Many practices of tillage and seeding are well established upon a long line of observations by all sorts of men in all varieties of climates on all kinds of soil. The more varied these observations are the surer we are of the truth underlying the common conclusion, so long as it remains undisputed. But when experiences vary we have no means of correcting errors, and absolutely no data for conclusions. Few, if any, of the ordinary observers have any accurate record of their observations; most confine their attention to a single variable circumstance, if they do make a record; and all leave unnoticed a multitude of facts which may be essential in any analysis of cause and effect.

In an absolutely perfect experiment the observer is in full control of all variable circumstances, so that only one variation may be allowed to occur at the same time. Then he can measure the effect of this variation, and establish the law of cause and effect in this one particular, so as to make safe rules for guiding future action. Farming is not of such a nature that its multitudes of forces can be fully controlled, and there are very few cases where a single variation can be secured. If two methods of plowing are tried in separate fields, the variation in fertility, or in exposure, or in condition at time of handling, may be greater than in the two methods of plowing. If they are tried in successive seasons, as is usual, all the variations in climatic conditions are added to the others, and few will contend that such a trial is fair; yet men are ready to dispute over conclusions formed in just such ways.

With such natural obstacles to accuracy, it is proper to insist that the Experiment Stations of the country take the utmost pains to insure the fullest possible records of observations, and the most complete analysis of variable circumstances in each experiment. Even then it is necessary to provide for many repetitions of identically the same trial, in order that the unnoticed circumstances may be given due weight even when they cannot be measured or described. The inequalities of soils may be beyond detection by any analysis, and still have a distinct effect on growth. The variations in application of moisture to the soil may be unmeasurable, and still have marked effects. A multitude of trials under skilled observation may find the true cause, while any number of trials under ordinary observations gives only a dispute.

The strict logic of experiment in such matters can only be approximated; yet all true progress must be made by striving to make the strictest application possible of genuine methods of reasoning. The common method of judging by agreement of many instances is good only so long as we know that we have the exact points of agreement and all the causes observed. Many men may agree in testimony to the advantages of a certain seed wheat, and their testimony be worth little without a knowledge of all the other particulars in which their use of the given seed agree. In matters of breeding, tillage, manures, rotations, etc., the agreement proves still less, for the reason that innumerable other agreements may enter unnoticed.

As a substitute for comparison of trials in pairs with a single variation, as in testing the effect of a fertilizer, it is customary to continue a series of pairs so related to each other that the effect of

other variable causes may be neutralized. Of two selected plots of ground, one may be more fertile than the other; but of twenty selected plots it can scarcely be possible that any ten alternate plots can have much advantage over the other ten. If it is possible, a reversal of the trial by plots will correct the possible error, and in a series of years such repeated trials give almost the certainty of the exact method by a single difference.

Such accurate tests cost money and require time. It is a temptation to the experimenter to hasten the work, and save the expense. So much more can be done if the bulk of the data can be assumed without accurate weighing and analysis by expert observers. Yet all such haste merely puts off to the future the real investigation that insures truth. "Art is long," and the reality of progress in the art of agriculture is to be secured by painstaking collection of all the data. To scatter the funds over the States in the employment of unskilled observers is to delay even further the true object of the Stations. Only a few tests can be well distributed without marring the nature of the test in all essentials. The better way is to use the Station as a center from which only accurate data shall be published, and introduced by its authority for general tests in average practice. The checks upon observation can then be applied successfully.

AN ATTEMPT TO TEACH PRACTICAL MECHANICS.

THE article by Mr. John T. Hawkins in this magazine for July on "Intuition in Machine-Designing" treats of a subject of vital importance. In June, 1891, the Mechanical Engineering Teachers' Association was formed at Columbus, Ohio, to discuss such subjects as Mr. Hawkins presents. The belief that too little is done towards a direct training of natural inventive capacity in engineering schools is held by some of these teachers, and doubtless will be expressed at the coming meeting in Rochester. To accept the remedy proposed by Mr. Hawkins, that of doing without the more ornamental higher mathematics, and giving the time to the cultivation of what a New Englander would call mechanical "gumption," seems to some a lowering of the ideal of a "mechanical engineer" that has been established by the larger colleges. A college which would lower its requirements in mathematics would be judged as being in a state of decline by critics who would not consider whether the high mathematical ideal set up was producing as great a percentage of successful engineers as might be expected.

It has been said that this country has no intermediate schools, each small college trying to ape a complete university. So it seems that all engineering courses are endeavoring to train mathematical engineers, of whom we certainly need a few, and are ignoring the demand for a host of more practical constructive engineers. It ought not to be possible for a young man without inventive capacity and general mechanical "gumption" to pass a mechanical-engineering course solely on the strength of mathematical aptitude, but that such cases are possible every graduate knows. To have the higher mathematics excluded from all our technical courses would indeed be a shame, but it cannot be true that if this study is good for a few it must be good for all, unless mechanical engineering cannot be taught without its use. It would seem that some colleges would find both honor and profit for their students in following a course more largely technical.

An attempt in this direction is being made at the Kansas State Agricultural College. This is

one of the land-grant colleges under the act of 1863, and enrolls nearly 600 students, two-thirds of whom are young men.

The course followed is a general course, based on the industries, and while all young men are obliged to engage in mechanical work in the shops and receive some technical instruction, no separate mechanical course is provided, nor are mechanical engineers graduated.

A young man may spend ten terms of the twelve in the four-years' course in the shops if he chooses. At graduation the young man is equipped with a general education beyond what is usual in technical courses, with mathematics enough to handle mechanics without the calculus, and with a considerable shop practice extending over four years. A post-graduate course covering from twelve to eighteen months' continuous work in the purely technical subjects is provided, with more than usual liberty in the shops for the construction of original designs. It cannot be said that principles are neglected and mere "finger-wisdom" substituted, but the freedom of post-graduate work allows for the training of the natural bent of each individual beyond the possibilities of under-graduate work.

As Mr. Hawkins suggests, the "making a study of constructive problems occupies the highest place and is given the greatest time." The work demanded is more nearly what an employer would demand, both as to quality and time, and it is expected that no violent change of habits will be necessary, as the student goes out into such positions as are usually filled by technical graduates. Another point raised by Mr. Hawkins is that of "leaving the young man at graduation as an 'M. E.'" I believe such a degree to be a handicap, the employer frequently expecting too much of the graduate on account of the assumption of a little which should come only with experience. In three neighboring States are three technical schools; the one having the most severe course and requirements confers the degree of "B. S." at graduation, and "M. E." as a third degree after four years' experience and further study. Another confers "M. E." as a second degree, while the third graduates "M. E.'s" in four years.—*Prof. O. P. Hood, in The Engineering Magazine.*

A SERMON IN A MILE OF GOOD ROAD.

In Parke County, Indiana, much improvement in this line [roads] has been shown, and the practical results of good roads have created a general demand for their extension in other parts of the country. It used to be the custom of farmers in that section to "work" the roads in the same manner and with the same ignorant attention to the work in hand, that had been given it by their fathers and forefathers. They went out on that streak of disturbed soil, which by force of custom they call a "road," and under pressure of annual assessment proceeded to scrape and maul the soil for three or four hours per day. When the farmer was too busy to indulge in this annual diversion with the neighbors, it was permitted that two of his boys were allowed as a substitute for their father, and one of these "substitutes," writing at a later day, says: "It was as good as a holiday." One day it came to pass that two or three theorists and cranks began to talk to the people of Parke County about constructing turnpikes and gravel roads. They were met by arguments which the good people of Parke County would be ashamed to have repeated here, and they made few converts. Finally one of the enthusiasts in the county built a mile of gravel road, and paid for it out of his own private purse. He was a radical on the road question, and wished to convince his neighbors; but they made fun of his efforts and plunged along in the mud until it became apparent that there was only one mile of good road in the entire country. This mile of good road preached a powerful sermon. It was a better argument and made more converts than all that had been talked and written to the people for generations.

A wave of common sense rolled over Parke County, which contained at that time the muddiest roads in the State. A few enterprising people led the movement for improvement of their roads, and in a short time a solid highway was completed over which the farmers drew their loads with ease, pleasure, and profit. This road was the second convincing argument in that part of the country, and it routed the opposition.

The people found nothing else served to increase their individual and collective prosperity so much as good roads, and in a few years seven splendid gravel pikes were completed, all leading to the county seat, while all main roads in the county and the worst portions of the cross roads were well graveled. The common roads were also greatly improved, and to one who left the country, as I did, in 1867, and crossed it only by rail until 1879, the change was wonderful. Country travel had become a delight. Those who had been there all the time could not appreciate it so highly, and the "old fogies" were still kicking against every new road. To me there was something amusing in noting how many results there were which no one had anticipated. Of course the farmers hauled bigger loads, and did it in March easier than in hot August; wagons lasted a great deal longer; horses were rarely injured, and so it paid to keep better ones, and, what was of very great importance, markets could be reached at any season. But the most striking results were purely social, so much so as to suggest a revised text, thus: "Easy communications increase good manners." Good highways are the prime factor in civilization.

The farmers, formerly isolated for weeks together, discovered they could go anywhere they wanted to with ease, and at the very season when they had most leisure. To ride a few miles after supper was an actual pleasure, and soon almost every school district had its social, religious, literary, or political organizations, and some all four. There were lyceums, lectures, and joint debates, recitations and amateur theatricals—something really instructive and entertaining within a few easily covered miles for the farmer during half the evenings of the winter. The Quakers of the northern township soon had a regular series of literary contests; the people of two villages got up very creditable musical societies, while the young folks of "Raccoon Valley" capped the climax by taking the abandoned Bridgeton Church, refitting it into an exhibition and lecture hall. Now it is quite the common thing for a popular lawyer or other professional from the county seat to ride out ten or twelve miles after business hours, deliver a lecture in a crowded district school-house, and canter home by late bed-time. There has been a general "brightening up." The winter, once so gloomy to the isolated farmer, is now the season when he really lives. Another remarkable effect was to create a sort of furor for fine turnouts. That county was long noted in the adjacent cities as the best market in the country for fine buggies and carriages, and at the county fair one may see hundreds of farmers' families in vehicles so elegant as to attract attention.—*Good Roads.*

OBJECT IN STUDY.

A few days ago I asked a school superintendent of great ability and observation what proportion of children who enter the primary schools continue during the whole public course. His immediate answer was, "Five hundred enter the primaries and twenty-five of them graduate from the High School." This thinning process is startlingly suggestive of the mingling as much useful instruction as possible with the drawing out process. It is in this light that it seems to me incumbent upon teachers to impart to their pupils, especially in the lower grades as much instruction as is profitable rather than make the pupil's life a series of conundrums. I should regard it as of more importance in arithmetic for a boy to have a thorough knowledge of its working system, however acquired, than to insist upon his inventing a new arithmetic. This can be done without any cramming process, but it magnifies practical results. Perhaps I am wrong in taking arithmetic as an illustration, in as much as some eminent men think that arithmetic ought to be thrown out of the schools. I should not see the advantage, in our system of public instruction, of throwing away the results of past investigations and requiring every pupil to begin the work for himself. If mineralogy is in a course of study, what objection

is there to a cabinet of specimens, each of which shall have a particular label? The ordinary pupil cannot spare the time to make the collections over again, and especially if he is to go through the same process with geology and botany and chemistry and biology and all the rest. The same principle holds in the earlier and simpler studies to which most of our pupils are, or ought to be, limited. Honest and faithful teachers need not be afraid to teach something. A farmer who did not instruct his boys in farm work, but left it to themselves to discover methods on a patch of wild land where he should fence them in, might be a philosopher, but the operation would not be profitable. Instruction is, in fact, the very beginning of education.

If one of my daughters was to be taught how to make good bread (and both of them know how) I should prefer that their mother should show them how to select the properly tinted flour and how to make and bake the bread by practical processes, rather than remit them to making inferences from the chemical character of the carbohydrates, albuminoids, potash, and soda, which inferences might result in developing their minds, but which might not edify household life.—*Dr. Quint, in The Congregationalist.*

ROAD IMPROVEMENT.

It has been estimated that the farmers of the United States pay the enormous sum of \$660,000,000 every year for the transportation of produce and grain from the farm to the nearest market place. Under the most favorable conditions wagon transportation over the average road costs from fifteen to twenty cents per ton for each mile. During part of winter and in early spring the roads are usually impassable, field work is out of the question, and nearly 18,000,000 draft animals have to be kept in idleness, causing a loss of at least \$57,000,000. From figures recently prepared by Mr. John M. Stahl, an authority on highway improvement, it is learned that the establishment of good roads would save the farmers of the United States \$500,000,000 a year—a sum which would extinguish the National debt in three years.

A system of gravel and macadamized roads, built by competent men, is needed in every State of the Union. The Legislatures of a number of States have shown a disposition to aid the advocates of good highways. Soon we may expect the passage of bills providing for the inauguration of the work. But before the movement receives the hearty support of the farmers they must be convinced that the actual distance from farm to market is not to be measured by miles, but by the character of the roads, and that poor dirt roads are a tax exceeding in volume every other burden borne by the rural population. At the same time a crusade against narrow tires should begin. No matter how well made a road may be, the tires now in general use would ruin it in a month. In France, where road building has attained a high state of perfection, no tire less than six inches in width is countenanced. A tire twelve inches wide—and such tires are not uncommon in Europe—enables one horse to do the work of two, and at the same time is a perfect roadmaker. It crushes the macadam into a compact mass, and solidifies a gravel roadbed. The cost of building a mile of macadamized road is said to be from \$3500 to \$5000, and of gravel road from \$1500 to \$2000, according to grade. Either of these amounts could be saved in one year in actual dollars and cents, to say nothing of the appreciation in value of farm lands, which is estimated at twenty per cent.—*Chicago Graphic.*

STUDY YOUR BUSINESS.

The managers of one of the largest creameries in the world—the Standard Butter Factory of Oswego, N. Y.—says that if he could induce every patron, who is not already so, to become a subscriber to three or four of the best agricultural journals, he is sure that he will be doing him a most substantial kindness. A single hint or bit of experience from a practical man often proves to another that some one of his practices is wrong. Many do not study the feeding problem, and doubtless, while feeding the best of materials, are so combining them that a large part is wasted. Every trade, business, and art has its trade journals, and none need them more than does the farmer—none are slower to avail themselves of their help.—*New England Farmer.*

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.
 Winter Term—January 8th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Commencement.
 1893-94.
 Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

The new forges and anvils have been received for the blacksmith equipment.

Prof. Popenoe and family have returned from a short visit with friends in Topeka.

The wife and son of H. A. Platt, '86, are spending a few weeks with Mrs. Prof. J. E. Platt.

Prof. and Mrs. Hood are enjoying a visit from an uncle of Mrs. Hood, Mr. R. Smith, of Terre Haute, Ind.

A novelty in the gardens is the thirty varieties of peas in bloom. The crop will shortly be ready for picking.

A dozen incandescent electric lamps will be placed in the Iron Shop for use in the short winter afternoons.

Forty varieties of cabbage are being experimented with, to ascertain the value of fertilizers on this vegetable.

One team has been employed a good portion of the summer in hauling manure from the city to the vegetable plats.

Prof. Georges' house was the scene of a lawn social Tuesday evening for the congregation of the Episcopal Church.

Mrs. Winchip's son Albert had the misfortune to break his right arm last week, but is mending it as fast as nature will let him.

Prof. and Mrs. Nichols are enjoying their new tandem safety bicycle more than ever since the weather is cooler and the roads smoother.

The annual record of experiments in wheat culture is in press as Bulletin No. 33, the first of the series for 1892, and will be issued next week.

The College farm can furnish no more seed wheat of the two leading varieties, the Currel and the Zimmerman, the supply being wholly exhausted for this year.

Prof. Olin entertains this week Rev. R. M. Tunnell and family, who returned from their sojourn in California to make their home at Fairmont Institute, Wichita, Kansas.

Rawle's Genet is the only apple that will yield anything approaching a crop this season—this due to its late blooming, thus escaping the cold, wet weather to which the earlier sorts succumbed.

The *Kansas Farmer* of August 24th contains two articles by College people—"Some Points in Wheat-growing," by Prof. Georges, and "Home Industries in Schools," by Mrs. Kedzie.

A hundred varieties of grapes are bearing fairly well, and while the yield is below the average, the fruit is of superior quality. The product is readily disposed of at four to five cents a pound.

The INDUSTRIALIST is sent for the present to those on the list of last year, but a revision of the list will be made after the term begins. If any old friends miss its visits they may inquire at headquarters.

Janitor McCreary returned Tuesday from a four-weeks' sojourn in the mountains of Colorado, with headquarters at Colorado Springs. He is well pleased with the trip, and expects to repeat it sometime in the future.

The mother of S. I. Wilkin, Third-year in 1891-2, inspected the various College departments on Thursday last in company with Mrs. John Davies. Mrs. Wilkin plans to send a younger son and a daughter to College next year.

Prof. J. W. Rain, Assistant in English at this College last year, read at the Congregational Church Monday evening in a varied programme, including selections from Shakespeare and Burns. The professor had just returned from a western

trip of three months extending to northwestern Pacific Coast points, and left on Tuesday for a year of teaching and study in Oberlin College to prepare for the ministry.

Secretary Graham, having sold his house to Mr. John Copley, will for the present occupy the Winchip house on College Hill. He has purchased the five lots at corner of Laramie Street and Manhattan Avenue, and may build there soon.

Mr. Hoop, of Manhattan, is at work on photographs of College buildings, grounds, fields, etc., for exhibition at the World's Fair. The negatives, several hundred in number, will be enlarged by the bromide process, and will undoubtedly make a grand showing.

President Fairchild, giving an address on "Industrial Training," before the Teachers' Institute of Kansas City, Kansas, on Wednesday last, was greeted by Ex-Regents F. D. Coburn and Thomas Henshall, and by Tina Coburn, Gertrude Coburn, and S. L. Van Blarcom, of the Class of '91.

Those desiring to accommodate boarders as roomers are requested to send at once to Secretary Graham their names, the location of their house, and their terms. A printed list will be prepared next week, and those whose names appear early will have the best opportunity to fill their rooms.

Under the supervision of Street Commissioner Sears, the stone walk leading to the College has been thoroughly cleaned of grass and weeds, and has again become passable. The Commissioner will undoubtedly receive a vote of thanks from each of the half thousand daily users of this walk, and we move to make it unanimous.

The group of hydrangea *paniculata grandiflora* (cannot somebody suggest a shorter name?) in front of the President's house make a fine showing. This shrub is especially valuable, flowering as it does in August and September, when there is a dearth of blossom; and for this reason, added to its graceful habit, it is becoming more popular every year with gardeners.

The Faculty of 1892-3 has twenty-two members. The new names in the list are worthy of mention. Mr. S. C. Mason has been since 1888 Assistant in Horticulture for the Station, and still retains this responsibility while taking charge of classes in horticulture as Assistant Professor. He is a graduate of this College in 1890, having completed the greater part of his course as early as 1881. Miss Josie C. Harper, of Manhattan, has been a successful teacher at Bethany College, Lindsborg, having pursued special studies in that branch since her student life in this College prior to 1877. Miss Alice Rupp, who takes up the work of Assistant in English, is a graduate of the State Normal School of Indiana, with an excellent record as student and teacher. She resigns the principalship of the Polk School, in Topeka, to accept the place here.

Prof. Popenoe, Secretary of the American Horticultural Society, has just issued a letter circular announcing Chicago as the place for the next meeting, and September 28th the date. The circular concludes: "Matter already in hand promises a programme of varied and unusual interest, and many of the probable contributors as yet to be heard from. As it is intended to issue a preliminary programme for distribution in advance of the meeting, members who will present papers are urged to send titles at once to the Secretary, that proper time may be assigned them. As members generally know, the Society's funds were not sufficient to publish separately, in the desired form, the transactions of the Texas meeting without incurring indebtedness. It is proposed to add to these the proceedings of the forthcoming meeting in Chicago, and to issue the two volumes in one, the series thus being maintained unbroken. In order to insure this publication at once, it is important that all renewals of membership should now be made, especially of those who are prevented from attendance upon the meeting. The biennial fee of \$2.00 should be sent by draft or money order to the Secretary, at Manhattan, Kansas. Generous concessions in rates have been made by prominent hotels, and the customary reduction in railroad rates is expected. Further announcements will give more definite information upon these points, as well as upon the excursions planned for the amusement of those in attendance."

GRADUATES AND STUDENTS.

E. M. Fairchild is spending a few days in Nebraska.

S. C. Winkoop, Third-year in 1888-9, is at Loveland, Colo.

A. O. Wright, '91, goes to Lake Arthur, La., for newspaper work.

Julia R. Pearce, '90, is installed as Assistant Librarian at the College.

E. C. Thayer, '91, will continue his electrical studies at the State University this year.

Grace M. Clark, '92, takes the place of Stenographer and Clerk in the Executive office.

P. C. Milner, '91, is Assistant Night Baggage-man at the Union Pacific Depot in Manhattan.

F. C. Burtis, '91, Assistant in Agriculture, is visiting with his brother, W. J. Burtis, '87, at Fredonia.

J. R. Laswell, Second-year in 1887-8, was married recently to Miss Jeannie S. Smith, of St. Clere, Kan.

Rev. Geo. H. Perry, former student, and Grace Parker-Perry, '80, are visiting their parents in Manhattan.

A son arrived at the home of D. E. Bundy, '89, on August 7th. Mr. Bundy is still on the farm near Blue Rapids.

C. W. Jenkins, student of last year, writes from Albuquerque, N. M., where he will attend the University this year.

J. N. Bridgman, '91, requests that the INDUSTRIALIST be sent to his address at Palo Alto, California, where he is now located.

C. J. Dobbs, '90, is in the law office of H. L. Call, Second-year in 1880-1, at Topeka. He expects to be admitted to the bar this fall.

A. E. Campbell, Second-year in 1890-1, is stenographer to General Superintendent Dunlap, of the C. R. I. & P. Railway, at Topeka.

J. Frost, '92, reports from Blue Rapids that he is "to preside in one of Marshall County's school-houses and deal out wisdom to the amount of \$40 a month."

Geo. L. Clothier, '92, having been nominated on the Populist ticket for Superintendent of Waubunsee County, has resigned his place in the Clay Center schools to devote his time to the canvass.

G. G. McConnell, Third-year in 1883, was a recent visitor to the College after an absence of eight years. The many changes and improvements noted hereabouts so pleased him that he promises visits at shorter intervals hereafter.

I. B. Parker, '92, after a long journey through Wyoming and other States of the Pacific slope, returns to Kansas, expecting to enter the Kansas City Medical College this fall. He donates to the Museum a fine specimen of the famous Laramie shales.

THE WEATHER FOR AUGUST.

BY PROF. E. R. NICHOLS.

Temperature.—The mean temperature for August, 1892, was 74.52° , which is 1.54° below normal. There have been twenty-two warmer and twelve cooler Augments in the last thirty-five years, the extremes being 85° in 1860 and 70.44° in 1868. The highest temperature was 105° , on the 5th and 7th; the lowest, 46° , on the 30th,—a monthly range of 59° . The warmest days were the 7th and 8th, the mean being 88.5° ; the coolest day was the 29th, the mean being 61.50° . The greatest range for one day was 39° , on the 4th; the least, 15° , on the 29th. The mean of the observations at 7 A. M. was 69.39° ; at 2 P. M., 86.2° ; at 9 P. M., 71.26° . The mean of the maximum thermometer was 90.74° , and of minimum, 62.74° , the mean of these two being 76.74° .

Barometer.—The mean barometer for the month was 28.846 inches, which is a little above normal. The maximum pressure was 29.06 inches, at 7 A. M. on the 19th; the minimum, 28.558, at 2 P. M. on the 9th,—a monthly range of 0.502 inch.

Rainfall.—The total rainfall for the month was 4.324 inches, which is 0.79 inches above normal. Rain fell in measurable quantities on the 9th, 13th, 22nd, 23rd, 28th, 29th. From 2:10

to 2:30 P. M. on the 23rd 1.025 inches of rain fell. There were a few hail stones on the 23rd.

Cloudiness.—There was only one day entirely cloudy, three two-thirds cloudy, three one-half cloudy, seven one-third cloudy, two one-sixth cloudy, and fifteen cloudless. The per cent of cloudiness for the month was 23.

Wind.—The wind was from the east twenty-four times; southwest, sixteen times; northeast, twelve times; southeast, seven times; south, seven times; north, four times; northwest, three times, and a calm at the hours of observation twenty times. The total run of the wind for the month was 5144 miles, giving a mean daily velocity of 165.94 miles, and a mean hourly velocity of 7.67 miles. The maximum daily velocity was 430 miles, on the 8th; the minimum, 38 miles, on the 10th. The maximum hourly velocity was 26 miles, from 2 to 3 P. M. on the 2nd and 8th.

Below will be found a comparison with the preceding Augusts:—

August.	Number of rains.	Rain in inches.	Prevailing Wind.	Mean Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	5	3.98	SE	74.65	100	50	.....
1859	5	6.84	SE	76.89	98	58	.....
1860	3.00	S&SW	85.00	112	.....	.....	.....
1861	4	1.39	S	73.14	99	62	.....
1862	9	2.85	S	77.66	101	64	.....
1863	8	6.21	S	77.97	96	54	.....
1864	6	1.84	NE	77.73	99	56	.....
1865	8	5.04	SE	75.01	90	59	.....
1866	2	.10	SE	76.31	98	55	.....
1867	4	.70	S	77.00	94	59	.....
1868	8	5.94	SE	70.44	92	54	.....
1869	10	2.23	SW	75.25	91	62	.....
1870	13	5.21	NE	71.95	99	52	.....
1871	8	4.23	SW	75.27	94	53	.....
1872	8	5.32	SW	76.92	96	57	.....
1873	5	1.64	SW	77.88	104	59	.....
1874	4	.25	SW	83.11	109	58	28.72
1875	6	1.40	S	72.12	93	47	28.73
1876	8	10.70	SE	76.31	92	48	28.79
1877	6	2.78	SW	75.04	96	48	28.80
1878	5	2.66	SW	77.57	97	47	28.77
1879	4	1.61	SW	77.57	99	61	28.75
1880	11	8.61	SW	76.00	97	46	28.65
1881	2	.43	SW	83.81	105	65	28.65
1882	3	.87	N	73.64	91	52	28.70
1883	4	3.94	E	72.96	93	50	28.73
1884	8	6.21	SE	72.14	94	48	28.94
1885	5	.89	SW	74.17	98	41	28.65
1886	9	2.06	SW	79.27	110	49	28.88
1887	11	6.66	S	73.65	106	51	29.04
1888	9	4.46	SE	74.11	104	49	29.03
1889	6	2.48	.....	74.06	97	51	29.15
1890	8	5.72	SE	74.33	102	50	28.91
1891	5	.98	S	73.65	102	49	28.82
1892	6	4.32	E	74.52	105	46	28.85
Means	6.4	3.53	SW	76.06	98.6	51.6	29.02

WIND RECORD.

August.	Total Miles.	Mean Daily.	Maximum Daily.	Mean Hourly.	Maximum Hourly.
1889	5921	191.00	386	63	7.80
1890	6137	197.97	443	77	8.25
1891	5737	185.06	333	42	7.71
1892	5144	165.94	430	38	6.91
Means	5735	184.99	398	55	7.67

WHAT SCIENCE DID.

People often ask what is the use of the abstract studies scientific men and women often indulge in. The reply is, you must first discover a new truth before you can tell whether you can make any value of it. The valuable discovery that the black rot can be prevented from injuring grapes by inclosing the bunch in a paper bag is the direct result of scientific studies. When it was found that the rot was caused by a fungus growing from a little seed or spore which, floating through the atmosphere, attaches itself to the grape berry, it was the easiest thing to think of putting bags over the bunch early in the season, so that the spore couldn't get there. Hundreds of thousands of dollars have been saved to the cultivator by this bagging of grapes, which would have been totally lost but for the labors of scientific men.—*Mechan's Monthly*.

Education is not only of value in the business of life, but to the inner self of the man. It enriches the mind, puts it in rapport with the handiwork of the Great Ruler of the Universe, enables its possessor to see the beauties of nature, and to revel in the earthly paradise as a king of earth and a prince with God. He comes to know himself, to know the world, to know how to subdue the earth; how to train his own heart; how to possess his soul in patience; to gather the buds of peace and the roses of joy and gladness. The first end of knowledge is to be ourselves, to make the most of ourselves, and in that way fill the purposes of our being.—*Pres. David R. Dungan, Cotner University*.

THE FARMER OF THE FUTURE.

"Give me a picture of the ideal farmer of the future," asked a correspondent of the *Chicago Herald*, of the Secretary of Agriculture recently. "What must he be to succeed?"

"The only hope of the American farmer will be his brains," replied General Rusk. "The sharp competition between sections and countries which will be induced by increased facilities for transportation will stir the agriculturist up to his best efforts. His chances for fortune-making will be great, but he will have to be prepared to fight the battle of competition for them. He must be sufficiently well educated in science, as far as it is applicable to agriculture, and he must be intelligent enough to study his surroundings and to apply his knowledge to the conditions about him. He will be able to meet his fellow citizens on an equal footing, and his brains will command from his class in the industry which he represents the respect and consideration which he deserves, and he will give other classes and other industries due respect in return. The farmer of the future will be a business man, able not only to compel his soil to do its best in the matter of production, but to study the markets and know what will sell the best and what will command the highest price. The farmer will keep his accounts like any other business man, so that he may know exactly where his profits are and where they have been."

THE FARMER BOY'S EDUCATION.

As one who grew to manhood on a farm, let me say to the mothers and fathers who read this paper: Give your children, both boys and girls, the best education you can afford. Encourage them to read and study from their earliest years. Prove to them in your homes that a farmer's house may be supplied with good books, good magazines, and good newspapers, just as the house of a preacher, or a college professor. Teach them there is as much room for use of the best trained intellect on the farm as anywhere else,—that the highest education that they can get will be none too high for use in solving the problems of successful agriculture.—*Orange Judd Farmer*.

TEACHERS AT THE WORLD'S FAIR.

A plan to utilize all the school-houses in Chicago as dormitories for teachers visiting the World's Fair is being agitated. Mrs. Solomon Thatcher, Jr., one of the lady managers, advanced the idea, which has been generally approved. She says that there are more than 300,000 school-teachers in the country who will probably attend the Fair, and that a nominal fee from a reasonable proportion of them would pay the expenses of transforming every school-house in Chicago into a lodging-house and keep it in perfect order.

BULLS FOR SALE.

The College has a few fine Shorthorn bulls which will be sold reasonably. Also a Hereford and a Helstein-Friesian bull. They are all animals of much individual merit and of the best breeding. They can be sold cheaper now than in the spring. Professor Georgeson will answer all inquiries concerning them.

South Dakota will be creditably represented at the Exposition, having now \$22,000 in sight with which to prepare its exhibit. The money has been raised by subscription.

Ten or twelve dollars a year spent for good papers will go a great way in making men and women, as well as farmers of our boys and girls.—*Orange Judd Farmer*.

There are three kinds of farmers: those who sneer at agricultural papers, those who expect the agricultural papers to think for them, and those who read agricultural papers for principles which they apply in the exercise of their own sound judgment.—*Our Grange Homes*.

In whatever business or profession a person is engaged, if he follows it with the mental or physical effort necessary to win success, there is not only a pleasure but a necessity in the annual vacation which all are now looking forward to with so much interest.—*S. L. Boardman*.

"REPAIRING" ROADS MAKE THEM WORSE.

Taken in all lights, those of comfort, health, economy, profit, the road improvement question looms up as the most important now before the American people, says E. P. Powell. It is pre-eminently a popular question, but the farmers will gain more than any other section of a community. "Why," exclaimed a gentleman recently, "do you not know that within a few miles of the large and beautiful city of Utica there are roads that at all times it is unsafe to drive over with a light buggy. And they are not byways either; but are main thoroughfares in one of the most prosperous and richest agricultural regions in the world. Are they never repaired? To be sure they are, and that is the chief aggravation. It is an actual fact that the roads are not made better by the so-called repairs, but are really made worse. Loads of dirt or gravel or big stones are hauled on the driveway, seldom even graded, and no bottom prepared but a wet subsoil. It is a risk to undertake to drive over some of these roads. Do you suppose a sensible man will pay as much for a farm that is separated from the city and the markets by five miles of mud and misery as he would if these five miles were good roads?"

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler," Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

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E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silver-ware, Spectacles, Clocks, Fountain Pens, Gold, Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

DR. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

DEWEY, the photo grapher, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequalled for beauty of finish.

BOOTS AND SHOES.

RELIABLE Boots, Shoes, and Rubbers, direct from the leading eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

LESL E. H. SMITH.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class, special Sattent will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

SHULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

SHAVING PARLOR.

BATHS, \$1.00 cash, 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

GENERAL MERCHANDISE

THE SPOT CASH STORE is Headquarters for Dry Goods, Novelties, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

E. B. PURCELL, owner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes,

THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, SEPTEMBER 10, 1892.

NUMBER 4.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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GRACE M. CLARK, B. Sc., Stenographer in Executive Offices.

WM. BAXTER, Foreman of Greenhouse.

W. L. HOUSE, Foreman of Carpenter Shop.

E. HARROLD, Foreman of Ironshop.

C. A. GUNDAKER, Engineer.

A. C. McCREARY, Janitor.

ASSISTANTS IN EXPERIMENT STATION.

F. A. MARLATT, B. Sc., Entomology.

WM. SHELTON, Foreman of Farm.

F. C. BURTIS, B. Sc., Agriculture.

M. A. CARLETON, B. Sc., Botany.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

DON'T CROWD THE CHILDREN.

BY PRES. G. T. FAIRCHILD.

ACH year, as the College attracts a new class, the question is raised again and again, "Cannot my boy or my girl of fourteen do better in the college classes than in the public school?" Often the youth is bright, stands at the head of his class, and will be uneasy if held back by lack of years. Sometimes the routine of school life has become a burden, and the father thinks a new inspiration will come with college methods and college competition.

In general the College course, though adjusted closely to the common schools, does not meet the wants of boys and girls at the age described. No one can feel that the work of classes where the average age is fully eighteen years, and where a large proportion are full grown men and women, can fit well the thoughts and habits of study of even the bright ones of fourteen. Still less suited to their needs, a year later, is the second year's course in chemistry, and lectures on practical methods in agriculture and horticulture. Even if they maintain a high standing in classes from extraordinary brightness, their actual accomplishment in such studies would be far greater if a year or two of growth in experience of the world about them through work and play and reading were added.

It is little advantage to any youth to complete a course of study such as ours at eighteen. The imitation of maturity secured in such a course results too often either in putting the apparently "old head on young shoulders," or giving the show of knowledge without judgment. Rare exceptions but prove the rule.

Let parents, and youth, too, think several times before this crowding forward is undertaken. To be the youngest in the class is a distinction never to be craved. It deprives of many opportunities, and brings many temptations and discouragements. A daughter at that age may far better spend a year in house-work with mother's help in training to see, to think, and to act, than in cramming for examinations with her elders. A lad who can learn to work at anything, and can be stimulated to read about the world he lives in, will grow into a wiser man if he waits a year, even well into his fifteenth, to enter our College course.

THE COLLEGE IN THE STATE FAIR.

BY PRES. G. T. FAIRCHILD.

SOME of the products of the Experiment Station of the College form the annual exhibit of this institution at the State Fair, and all interested should be sure to give themselves the pleasure of a glance at what the Station has to show in fruits, vegetables, and grains.

The plan is to show samples of varieties grown here in such shape as to make plain the characteristics of each, and the advantages, so far as determined, of its cultivation in this region. For the peas and beans some pains will be taken to class together those of similar type, and to label distinctly according to the best information obtainable. The grapes, about one hundred varieties, are shown in select clusters preserved by enclosing in paper sacks early in the season, to secure against various diseases, as well as birds and insects.

The wheat shown is from several hundred varieties cultivated for the past three years, with a view to selecting the few most profitable for general culture. Both the straw with heads, and the grain in appreciable quantity, will give ample evidence of the extensive tests made, and the bulle-

tin describing them will be furnished to those caring to study the matter further.

The corn and non-saccharine sorghums are also shown for illustration of the extended variations within which selections can be made for yield, earliness, etc. The collection of garden sweet corns is grown and shown for the same purpose of fixing knowledge of varieties with reference to securing the best for definite purposes.

The saccharine sorghums and the sugar beets are given in samples of best sugar-content, with definite data that any looker-on can retain as to quality, form of growth, etc. The College has beets growing in hundreds of places in the State, all to be tested this fall. These samples show only the form and size sought for best yield of sugar.

A few specimens of grass and weeds and illustrative collections of other injurious plants are given only to indicate, without showing the entire range of investigations that the Station is working in other directions too numerous to mention, for the better information of farmers upon their business. If it were possible to transport the extensive field experiments themselves, so that the gathered thousands could see with their own eyes the careful methods employed in sifting facts in some 4000 plats under cultivation, the Station would be better represented. These samples can only hint at the nature of the work.

For general adornment, as well as information, a few photographs of grounds, buildings, and crops are displayed. These may serve to suggest that the Experiment Station is a Department only of a great State Institution where half a thousand farmers' sons and daughters every year add to their knowledge and their ability to think along the lines of their life work. Before this exhibit is closed the College halls will be crowded to overflowing with eager students from all over the State, and nearly thirty professors and instructors will be busy in providing for them.

TRUST THE CHILDREN.

AS young people grow to manhood and womanhood on a farm, there are many ways in which they can be given responsibility gradually; and this will often cause them to grow into trustworthy young people almost unconsciously, if their tasks, though never burdensome, are always well performed. Very often the difference between good work and poor work among young people lies in the fact that one takes the care of the work, while the other simply does it under some experienced director. No American likes to feel that he is not equal to any work he is able to do, and everybody should be trusted until he proves himself unworthy of trust. Children will take a certain pride in doing work that is all their own, and will do it much more faithfully than if it be entirely managed by some older person. Suppose they do forget sometimes, and cause inconvenience. Don't older people forget far more important matters? Suppose they do grow heedless, and some of the work must be done over! Don't older people need forgiveness often and often, and is it ever withheld? The remorse over forgotten pets or over a ruined book, or because of extra zeal in caring for some favorite plant is always punishment enough. It isn't right to take away all responsibility because of a mistake in some line. The boy who fed his hens salt because it was good for the cow made no greater blunder than has many a business man and many a politician, and it is quite likely he took his lesson to heart much better than did the older blunderer.

There is no way of so fully giving a child faith

in himself, or of making a thoroughly good workman of him, as by giving to him the full responsibility of whatever piece of work is at hand. If knowledge or skill is needed, let either be acquired; then don't let anyone "boss" the child any further. What our young people need more than any other development is independence of thought, and this will come faster through independent work than in any other way. Trust children in whatever line of work they must do, and see that they know the "whys" in all they attempt.

The girl who feeds a coop of chickens from the time they leave the shell until they are ready to find their own places on the hen-roost, has learned a lesson in house-keeping, for regularity in meals is one of the necessities.

A boy who has kept his mother's kindling-box from ever becoming empty during one week, has learned a lesson in political economy; for have not supply and demand been his chief factors?

The mother who remembers to use the loving praise when the work is well done and the gentle chiding when any is needed, who knows what children's thoughts are likely to be through close communion with the little ones every day, is the mother who gets her work done easily and who trains her children almost before she knows it. A wise mother, when asked how she trained her boys, said: "I don't think I trained them much. I loved them a great deal and showed them how I wanted things done. Then I trusted them always."

I speak particularly of home life on the farm, because it seems that there are many small cares that young people may take up and carry on until they see the completion of something in which they may take pride, while life in a town or village does not give many opportunities for such work. Is this one of the reasons why the strong men of our nation are nearly always found to have come from the farm life?

It is worth our while to learn to trust each other more fully in every way, but the faith we have in the ability of a child to do whatever task he undertakes must be shown in every way that will help that child toward better work. The trusting of young people makes them trustworthy men and women.—*Mrs. N. S. Kedzie, in Kansas Farmer.*

SCIENTIFIC AND TECHNICAL SCHOOLS IN AMERICAN EDUCATION.

Credit should be given to the Congress of the United States for the act which was passed July 2, 1862, under the enlightened leadership of the Hon. Justin S. Morrill, of Vermont, making generous provision for the establishment, in the several States, of colleges of agriculture and the mechanic arts. Most of this provision was, it is true, devoted to the creation of agricultural schools, regarding which the scope of this address does not require me to speak, and, indeed, regarding which I should scarcely presume to express an opinion; yet the part which was assigned to the promotion of the mechanic arts proved to be a most valuable and timely re-enforcement of the American system of technological schools.

But no one who thoroughly believes in the mission of the schools of this class can be content merely to assert that the full time had come in the economic evolution of the nation when such schools were imperatively needed for the promotion of our industries, and that the institutions thus called into being have done this, their primary work, with triumphant success. We go far beyond this, and assert for these schools that they have come to form a most important part of the proper educational system of the country, and that they are today doing a work in the intellectual development of our people which is not surpassed, if indeed it be equaled, by that of the classical colleges. No statement less broad and strong than this would begin to do justice to the view we take of what these schools are now doing, and are in an increasing measure to do, for the manhood and citizenship of the country. We

believe that in the schools of applied science and technology as they are carried on today in the United States, involving the thorough and most scholarly study of principles directed immediately upon useful arts, and rising, in their higher grades, into original investigation and research, is to be found almost the perfection of education for young men. Too long have we submitted to be considered as furnishing something which is, indeed, more immediately and practically useful than a so-called liberal education, but which is, after all, less noble and fine. Too long have our schools of applied science and technology been popularly regarded as affording an inferior substitute for classical colleges to those who could not afford to go to College, then take a course in a medical or law school, and then wait for professional practice. Too long have the graduates of such schools been spoken of as though they had acquired the arts of livelihood at some sacrifice of mental development, intellectual culture, and grace of life. For me, if I did not believe that the graduates of the institution over which I have the honor to preside were as well educated men, in all which the term "educated man" implies, as the average graduate of the ordinary college, I would not consent to hold my position for another day. It is true that something of form and style may be sacrificed in the earnest, direct, and laborious endeavors of the student of science; but that all the essentials of intellect and character are one whit less fully or less happily achieved through such a course of study, let no man connected with such an institution for a moment concede!

That mind and manhood alike are served in a pre-eminent degree by the systematic study of chemistry, physics, and natural history, has passed beyond dispute. The haste with which the colleges themselves are throwing over many of their traditional subjects to make room for these comparatively new studies, shows how general has become the appreciation of the virtue of these, when combined with laboratory methods, as means of intellectual and moral training.—*From an address by Francis A. Walker.*

WIDE TIRES.

In connection with what is said editorially in our agricultural department this week, the following from the *Maine Farmer* will prove of interest: As related to the matter of good roads, which has been receiving wide discussion of late, the recommendation of the use of wide tires on wheels carrying heavy loads comes in as an appendix. Some of the agricultural press have been calling public attention to the importance of this matter of late, and we refer to it further for the purpose of alluding to some experience that has been had in our State in the use of what others are recommending. In our own farm work we have always used the wide tires, and with entire satisfaction as to their advantage over those commonly in use among us. Probably there is no road in New England over which there is more heavy teaming than that from Miltown to Calais, two miles, in this State, Miltown being the point of manufacture of immense quantities of our eastern lumber, and the tide water of Calais the shipping point. A large part of this lumber is drawn by teams from the mills to the wharves. Many years ago a special act of the Legislature was secured requiring that no wheels should be used in this work under a specified width of tire. We know not whether the law still stands, but the six-inch tires are still used in the work. On the occasion of a visit to the place last year we noted the effect of these wide tires on the road. Many of these six-horse teams are at work all the time drawing their immense loads over this road, yet no ruts are made. Indeed, each wheel seems to be doing the work of a roller in hardening and smoothing the entire track, thus aiding in the making of a roadway, instead of continually working destruction to it. The experience in that locality ought to be a guide to others in their efforts at maintaining good roads. But it is necessary that good roads be constructed in the first place. When thus provided there can be no doubt that wide tires are less destructive in their effect on the road bed than those in more common use. True, the draft of wide tires on a perfect road bed, well hardened, is no easier than the narrow, yet unless smooth and hard, the advantage in this respect is very marked. On all our common roads wide tired wheels draw much the easier. In France, it is said, it is customary to use tires six inches wide for heavy teaming, and the forward axles of four-wheeled wagons are

made shorter than the hind axles, so that the four wheels roll a portion of the road two feet wide on every trip. Such wagons would improve the most of the common country earth roads.—*Farmers' Review.*

THE PEA WEEVIL.

We have just noted the current idea that the larva, while working in the interior of the pea, generally avoids the germ or plumule, and from this fact the impression has become more or less prevalent that peas that have been eaten by weevils are none the less available for seed. There has been many a discussion on this subject in the columns of the agricultural press, and while the weight of evidence has always been contrary to the use of damaged seed peas, still the question cannot be said to have been definitely set at rest before the publication of the results of Prof. E. A. Popenoe's careful experiments, in Bulletin No. 19 of the Kansas State Experiment Station. This investigator conducted a germination test of 500 peas of ten sorts with the result that but one-fourth germinated, and the partial destruction of the cotyledons rendered the further growth of these doubtful. A check lot of the same number of sound peas gave a germination of 97 per cent. An examination of 275 injured peas showed but 69 in which the germ was not wholly or partially destroyed. Moreover, Prof. Popenoe further states:—

"In a field test of the growth of sound as compared with weeviled peas, the results were more decisive from a practical standpoint. In this test, 23 varieties were represented, each by 100 sound and 100 weeviled peas taken as they come, without further selection. The seeds were planted in the garden in parallel rows, the sound and the weeviled peas of each sort side by side, the rows 18 inches apart. The planting was done on the 5th of June, and the dryness of the season hindered the perfect germination and growth to a noticeable degree. Of the sound peas, 68 per cent came up, and 64 per cent made strong plants. In 10 varieties of the weeviled peas, no seeds germinated; the remaining 13 varieties were represented in all by 58 plants, or 4.4 per cent, in germination, of which but 49, or 3.8 per cent, grew to average size and strength."

This evidence practically settles the long mooted question, and it is safe to say definitely that weeviled, or "buggy," peas should not be planted.—*Insect Life.*

THE VALUE OF HARD WORK.

Hard work, mental or physical, rarely ever kills. If a mild amount of physical exercise be taken, and a judicious amount of food be furnished, the bowels kept open in the proper manner, the surface protected with proper clothing, and the individual cultivates a philosophical nature and absolutely resolves to permit nothing to annoy or fret him, the chances are that he can do an almost unlimited amount of work for an indefinite length of time, bearing in mind always that when weariness comes he must rest, and not take stimulants and work upon false capital. The tired, worn-out slave should not be scourged to additional labor. Under such stimulus the slave may do the task, but he soon becomes crippled and unfit for work. The secret of successful work lies in the direction of selecting good, nutritious, digestible food, taken in proper quantities, the adopting of regular methods of work, the rule of resting when pronounced fatigue presents itself, determining absolutely not to permit friction, worry, or fretting to enter into his life, and the cultivation of the Christian graces, charity, patience, and philosophy.—*Medical Mirror.*

One of the stock criticisms urged against schools and education is that too much time is consumed for the advantages derived. Practical men, so it is said, have no time for liberal education in these days. But the utility of intellectual training depends upon the man educated more than the school which educated him. What is needed in active life today is the power, intellectual, physical, moral, to bring things to pass. Now, which of the two is most likely to be able to actually do things in this great busy world—the man who is wise and can think, observe, and plan well, or the one who is too ignorant to think, observe, and plan well? Learning does count when it is properly applied to the work of life.—*Western Rural.*

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.
 Winter Term—January 8th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Commencement.
 1893-94.

Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Prof. Walters has ordered three new drawing tables from Cincinnati.

Additional hat racks have been placed in the hall of the Main Building.

A new floor is found necessary in the north vestibule of the Main Building.

Prof. Georgeson visited Greenwood County this week, returning yesterday.

Prof. Willard's end of the Chemical Department enjoys a handsome new desk of antique oak.

Paint and kalsomine, artistically applied, add to the beauty and freshness of College Halls.

Mr. Seaton, a druggist of Newton, was a visitor on Tuesday on his return from the Pacific Coast.

The Military Department is rejoicing in the prospect of having full uniform for the Battalion this fall.

Fourth-years may expect a new text-book in Psychology this fall, and so will not invest in second-hand copies.

Mrs. Graham spent several days last week in attendance upon a district convention of the Christian Church, held at Barnes, Washington County.

The arrival of a number of young people looking for boarding places a week in advance of the opening of term promises a large attendance this fall.

With the host of duties incident to the opening of the College year, the printers will have their hands full next week, and the INDUSTRIALIST will therefore not be issued.

The College furnishes a good load of material for the display made at the State Fair by the Chicago, Rock Island and Pacific Railway, Mr. J. L. Coons being collector.

Mrs. Nichols won praises as musical director in the cantata, "Queen of the Flowers," rendered at the Opera House Tuesday evening for the benefit of the Ladies' Columbian Club.

The Horticultural Department is planning for additional teaching facilities in three propagating pits corresponding to those in use by the Experiment Station, the whole, including Horticultural Laboratory, Museum, and greenhouses, to be heated from one boiler. The Mechanical Department is making an estimate of the cost.

The publications of the Experiment Station are sent free to farmers who apply for them. At present a limited number of the annual reports for 1888, 1889, 1890, and 1891 can be supplied. These contain essentially all the matter published so far, and treat of experiments with wheat, corn, oats, forage plants, sorghum, sugar beets, ensilage, peas, beans, potatoes, tomatoes, strawberries, grapes, smuts in cereals, injurious insects, diseases of animals, pig-feeding, etc.

In a recent visit to the World's Fair Grounds, Prof. Walters treated himself to a feast in examination of the many beautiful architectural designs. He frankly admits that he was as curious as a resident of a back township on circus day, but in his pursuit of knowledge met with no rebuff. This preliminary taste but whets the Professor's appetite for the good things in store, and nothing short of a cholera epidemic or a famine in the money market can keep him away from the big show of 1893.

Mrs. Kedzie is at her post after a pleasant visit to northern and eastern points. She spent most of her time with her father, Prof. R. C. Kedzie, of Michigan Agricultural College, at Lansing, and in his company attended the meeting of the American Association for the Advancement of

Science, at Rochester, enjoying the distinction of being the only Kansan registered. She was a member of the Committee on Economic Science and Statistics, and was later made Secretary of the Section for the meeting at Madison, Wis., in 1893. Papers were read at the Rochester meeting by Prof. Kellerman, F. J. Rogers, '85, E. F. Nichols, '88, D. G. Fairchild, '88, and W. T. Swingle, '90.

GRADUATES AND STUDENTS.

B. H. Pugh, '92, visited College friends today.

H. Darnell, '92, teaches this year near St. Marys.

Christine Corlett, '91, teaches at Cleburne this winter.

The brass furnace is moved and rests in its new quarters.

J. W. Bayles, '89, attends Ottawa University (Baptist) this year.

Bertha Winchip, '91, is visiting in Vermont with her cousin, D. H. Otis, '92.

Minnie Reed, '86, will continue her post-graduate studies at College this year.

Kate Pierce, Second-year in 1890-1, expects to take up her course again this fall.

Lottie J. Short, '91, hopes to take up her post-graduate course again at beginning of the term.

A son gladdens the home of W. J. G. Burtis, '87, and Winifred Brown-Burtis, Third-year in 1887-8.

Louise Daly, Fourth-year, returned from Michigan last week in readiness for the opening of the term.

I. D. Gardiner, '84, and Ida Quinby-Gardiner, '86, are a third time called to mourn the death of a child—a bright little boy of fourteen months.

Bessie B. Little, '91, will be Assistant in the Sewing Department this year, having taking special training for such work last year.

Lieut. J. G. Harbord, '86, of the Fifth Cavalry, has been ordered to the Neutral Strip to keep out boomers, cattlemen, and hunters.

According to the *Mercury*, C. E. Yeoman, '91, has been nominated by the Republicans of Rush County for Clerk of the District Court.

C. A. Campbell and D. C. McDowell, '91, are at the College of Emporia (Presbyterian) taking a special course preparatory to entering a theological school.

E. A. Munger, First-year in 1886-7, remembered College friends with an invitation to his marriage in Chicago, August 31st, to Miss Alemena Silke.

Misses Houghton and Stearns, '91 and Third-year in 1891-2 respectively, visited College friends this week before going to Randolph for the year's teaching.

Graduates and students took part in the cantata Tuesday evening as follows: Pearl Dow, Mary Lyman, Ione Dewey, Marie and Gertrude Haulenbeck, and Alta Lee.

E. A. Allen, '87, has returned from Chicago, and supplements his law study by reading in Mr. Hessian's office. Mr. Allen plans to begin the practice of his profession shortly.

Mrs. Agnes Fairchild-Kirshner, with her little boy Robert, is spending a few weeks with her parents, while Mr. Kirshner attends court in Salsbury, Morris, and Russell Counties.

The *Republic* announces the marriage of U. G. Houston, '81, to Miss Belle Varrel, a teacher in the Concordia schools. Mr. Houston will soon enter a theological school in the East.

W. H. Olin, '89, writes in behalf of several candidates from his schools in Osborne expecting to enter College next week. That they have the brand of Supt. Olin's school is good recommendation.

W. J. G. Burtis, '87, is reported as being successful in fish culture on his farm near Fredonia. He raises not only carp, which, it appears, will grow almost anywhere with little attention, but successfully cultivates the lordly black bass in his pond.

Eben Blachly [Second-year student in 1891-2], oldest son of J. W. Blachly, last week went to

Great Bend where he joined a geological surveying party. An artificial arm now supplies the place of the left arm which was lost last year by accidental shooting.—*Republic*.

G. V. Johnson, '91, is a candidate before the Republican Convention of County "A," Oklahoma, for Superintendent of Public Instruction.

G. E. Stoker, '90, writes from his home in North Topeka of a pleasant and profitable year in his course in political science and the languages at Harvard. He expects the degree of A. B. in June next, and hopes to take the law course at the same institution in the future.

W. H. Sanders, '90, writes from Lake Worth, Fla., where he wields the hammer and saw at good wages as a mechanic. He wishes to continue by post-graduate study his connection with the College. Hattie Gale-Sanders, '88, he reports to be visiting in Vermont with their fourteen-month-old boy.

T. D. Hogbin, Second-year in 1890-1, was drowned while bathing in a pool near the Columbian River at Weenatchee, Washington, on August 22d. His associates in College will sympathize heartily with his mother, who writes a touching letter in tribute to the manly youth, just twenty-two years old, who had won the respect of multitudes besides his own family.

EXPERIMENTS WITH WHEAT.

Bulletin No. 33, detailing experiments in wheat culture for the year 1891-2, just published, ends with the following summary of results:—

1. The "Experimental Acre" yielded 31.3 bushels of Currel wheat; the average of twelve years, including two failures, is 23.81 bushels, and the average of the ten crops harvested is 28.57 bushels.

2. No conclusions can yet be drawn from the rotation plats. So far, the plats continuously in wheat without manure have given the best returns, the manured plats being so rich that the wheat lodges and does not fill out.

3. The plats seeded as early as Sept. 10th gave the best yield.

4. Mature seed gave a better yield than immature seed.

5. Of the methods of seeding tried the past season, the shoe drill with press wheels gave the best results.

6. Two years' experience in pasturing wheat agree in the conclusion that pasturing decreases the yield.

7. Two bushels of seed to the acre gave a larger yield than any less amount of seed.

8. In two years' trials, heavy, plump seed has given better yields than lighter grades.

WHY EDUCATE THE FARMER?

The professions are so full that few of the incomes equal those of good farmers. Railways are built and manned, and those who get the best pay in transportation lines go up from the working force, not from the schools. Every avenue is running over except those which lead to work in agricultural and mechanical directions. The farmer, who has created for all and helped to educate all, has been the last to recognize the need of special training for the farm. But now we have come to the time when the farmers must study sciences that relate to the farm. Waste cannot longer be indulged in. Thousands who were educated for something else have turned to farming and regret that they were not taught differently. There is a difference between 16 and 32 cents for butter, 3 and 6 cents for beef, \$75 and \$150 for horses, \$3 and \$6 for sheep, 30 and 60 bushels of corn to the acre, 150 and 300 pounds of butter from a cow in a season, and so on. Yet education makes a difference. An old farmer may say he goes to the maximum in all these and never saw a school. Agreed, but he learned his lessons in the school of experience, one that exacts the very highest tuition. We know some graduates of the grand old school of experience who took 40 years to get through, and paid as heavy dues every year as would put a boy through a four years' course. They are proud of their school, too, and tell how they squared accounts, fed and wasted as they learned, year after year, got a knowledge of pasturing in their twentieth year, made poor butter a quarter of a century, raised poor colts for 30 years, but do better now. Self-made men, sure enough, but how dear the doing of it.—*Farmers' Review*.

EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Riley is building a new school house.

In each of two townships in Shawnee County there is only one male teacher.

The permanent State school fund advertises nearly \$50,000 of uninvested money.

There are thirty-five denominational schools in Kansas, with an annual attendance of 6317.

The State Normal School enrolled 125 students in the graduating class during the first week.

The State Normal School at Emporia opened its doors last week to about 1000 fall term students.

Prof. Adam Rohe, of Lawrence, has been elected as decorator of the Kansas Building at the World's Fair.

Prof. H. A. Holister, of Argentine, Kan., has been elected Principal of the High School of Springfield, Mo.

The city librarian of Topeka says the most numerous class of readers of books are girls from sixteen to twenty.

C. H. Rice, formerly Superintendent of the Washington County Schools, died at Manhattan about a month ago.

Ninety-six teachers successfully passed the county examination for teachers' certificates in Labette County this summer.

R. D. Thatcher, formerly Principal of the Neodesha Schools, is now the President of the Oklahoma Territory Normal School.

Supt. R. W. Stevenson, of Wichita, is now State Manager for Ohio of the Massachusetts Benefit Association, with his office at Columbus, Ohio.

News comes from La Center, Washington, of the death of Sam Lappin, Ex-Treasurer of Kansas, who, in 1878, defrauded the State school fund of about \$17,000.

Prof. Blackmar, of the State University, intends to finish the "History of Higher Education in Kansas" for the United States Bureau of Education before November.

An applicant for a teacher's certificate at the Butler County Institute is said to have written that he "thought each child should be supplied with a dictionary ten years old."

The Board of Education of Burlington ruled out of school all children under seven years of age. It will be no longer necessary now to employ teachers who are also nurses.

The date of Columbian Day has been changed from October 12th to October 21st. The former is the date usually given in the histories, but reckoned by the present almanac, it is identical with the latter.

Lawrence wants \$10,000 from the State to build an electric street car line to the University. If the Legislature makes an appropriation for that purpose it will be in pursuance of "an act to render more accessible the approach of knowledge."

Kansas City Star.

After being closed for three years because of lack of funds, Garfield University at Wichita reopened its doors last week, and about two hundred students were entered. Nine instructors compose the Faculty. Henry Harding, a millionaire of Boston, is now backing the institution.

Prof. Carl Preyer, of Leavenworth, has accepted the professorship of Piano Forte in the State University. He is at present in Leavenworth, having just returned from Vienna, where he has been studying with Leschitzky, famous as Padewski's instructor. With Professors Penny, Dome, and Dunlap, the department has a strong Faculty.

TRADE SCHOOLS AND APPRENTICESHIPS.

Apprenticeships have gone out of fashion; trade schools are taking their place. The apprentice system is slow and behind the times. The trade school system is the method of the age; for it does its work rapidly and cheaply, allowing time for other education.

It is only quite lately that the public have wakened up to the necessity of trade schools. It has

been a question how our young people should learn trades. The tyranny of the labor unions was preventing parents from educating even their own children to their own trades; and it is difficult to say to what extent the evil might have gone had it not been for the foresight of certain intelligent men in our large cities who have established trade schools in which instruction is given in all the leading branches of industry, and where both young men and young women are taught. The New York Trade School, for which we are indebted to the intelligence and enterprise of Colonel Auchmuty, has done a great deal in this work; and we are grateful to Mr. Pierrepont Morgan for the splendid gift to this institution of half a million dollars, which was announced last week. The school started with thirty pupils. This year there are more than six hundred, and in them both the manual and the scientific branches are taught, such as plumbing, brick-laying, plastering, stone-cutting, painting, carpentry, and blacksmithing; and there are both day and evening classes so as to accommodate all who apply. During ten years this cluster of schools has sent out nearly 3700 young men with a competent knowledge of the trades taught. A similar work has been done in Brooklyn in the department of the Pratt Institute. Mr. Pratt was the most liberal of givers to this work, and the Institute which bears his name is not excelled anywhere.

These institutions and others like them have solved the problem how our young people should find time for a good English education and at the same time acquire skill in their trades before it is time for them to begin to earn their own living; and future generations will owe much to such men as Mr. Pratt and Mr. Morgan. Every large city will be blessed that finds such benevolence.—*The Independent.*

BRAINS AND THE FARM.

Nearly three-fourths of the men who have been chosen by the people for the great offices of the nation are men who were familiar with wooded hills and cultivated fields—for example, Lincoln, Grant, Garfield, Hamlin, Greeley, Tilden, Cleveland, Harrison, Hayes, Blaine, and many others almost equally conspicuous in current events or living memory. Among journalists, Henry Wadsworth spent his early life in rural Kentucky, and Murat Halstead was born and lived on a farm in Ohio. W. H. Vanderbilt was born and lived in a small New Jersey town and early engaged in the business of ship chandlery; Russell Sage was born in a New York village; Jay Gould spent his early years on his father's farm in New York State. Ingersoll first saw light in a country town in New York; Talmage in a New Jersey village, and David Swing, though born in Cincinnati, passed his boyhood on an Ohio farm. Whittier and Howells both spent their youth in villages, the former dividing his time between farming and his studies. Follow the list out yourself, and see how long it will become.—*Exchange.*

THE COLLEGE GRADUATE.

There is some doubt abroad as to the utility of a college graduate, beyond a mere gloss of superficial knowledge available only in polite society or in the field of scientific research, but it is quite true, as is remarked by a Boston contemporary, that as a matter of plain, solid fact the college graduate does exert a vital influence upon the world. His works can be found in the best books, magazines, and newspapers. His essays have within the past year taken prizes of value in competition with the writings of older men on economic subjects of real importance to everyday life. He goes at once into any of the professions which are now so largely recruited from American colleges, and he often meets with brilliant success where older men are still plodding along. He has youth, energy, and the influence of the best modern teachers on his side, and may learn the latest scientific methods far better than an older and busy practitioner can glean them from reviews. He may achieve within a year or two, while still young, the success which has just crowned much older men. It is not at all certain that he will do so, but if he has inherent talent and application and has profited by the unusual advantages which the modern college offers, he ought to be on the road to success before he is much older than he is today.—*Grange Bulletin.*

BULLS FOR SALE.

The College has a few fine Shorthorn bulls which will be sold reasonably. Also a Hereford and a Helstein-Friesian bull. They are all animals of much individual merit and of the best breeding. They can be sold cheaper now than in the spring. Professor Georgeson will answer all inquiries concerning them.

It has often been said on good authority that giving money to beggars is worse for them and for society than throwing it away. M. Monod, of the Ministry of the Interior in France, furnishes an illustration which goes far toward proving it. He tells of a benevolent French citizen who arranged with some merchants and manufacturers to give work at eighty cents per day to all who should apply for it with his recommendation. Within eight months 727 persons appealed to him for aid and work was in all cases offered to them. Of these, 553 never presented themselves for work. Of the remainder, only eighteen worked to the end of the third day. The result showed that only one beggar in forty was willing to work for his living when the opportunity was offered them. Help is worse than wasted on able-bodied men and women which does not help them to help themselves.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

SWINGLE & VARNEY'S Book-Store for School Supplies of all kinds.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

WATCHES, JEWELRY.

J. A. SHELDON, "the Jeweler." Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, Jewelry, and Gold Spectacles, also Musical Instruments. '75.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silver-ware, Spectacles, Clocks, Fountain Pens, Gold, Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

D. R. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural teeth a Specialty.

PHOTOGRAPHS.

D. DEWEY, the photo grapher, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue. Examine the new "aristo" photographs, unequalled for beauty of finish.

BOOTS AND SHOES.

RELIABLE Boots, Shoes, and Rubbers, direct from the leading eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

LESLIE H. SMITH.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class, special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

S. HULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

SHAVING PARLOR.

BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

GENERAL MERCHANDISE.

THE SPOT CASH STORE is Headquarters for Dry Goods, Novelties, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

E. B. PURCELL, owner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, SEPTEMBER 24, 1892.

NUMBER 5

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the college and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Application for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

SOME FIGURES ON ROADS.

BY PROF. J. D. WALTERS.

FARMERS know very well that the least change in the inclination of a road or in the character of a roadbed causes a great increase or decrease of the power required to draw the load; yet very few, perhaps, have an idea of the enormous waste in horse flesh which is needlessly caused every day by our primitive system of public roads, because a full conception of the matter can hardly be obtained from riding, whip in hand, behind the team. It takes a little figuring to realize fully that bad roads are a waste factor which eats into the grain bins and hay stacks as unrelentingly as usury interest.

Careful and oft-repeated experiments with the dynamometer have shown that the percentages of weight which can be drawn on a level over various roads as compared with what can be drawn on a steel railroad track, and averaging dry and wet conditions of the road bed, are as follows:—

On steel track, 100 per cent.

On a road paved with large granite blocks, 64 per cent.

On asphalt, 60 per cent.

On best block stone, 30 per cent.

On telford, 18 per cent.

On macadam, 13 per cent.

On dirt or rough gravel, 5½ per cent.

From this it appears that a team can draw on a common macadamized road more than twice as much, and on a good telford road more than three times as much as it could on a rough gravel road. Therefore, a farmer who sends produce to market for a hundred and eighty days in the year, using a poor dirt or rough gravel road, can do quite as much hauling in ninety days over the first, and in sixty days over the second road; and supposing the team, wagon, and harness to cost one dollar per day, which is certainly a low estimate, he will save on this single item \$90 in the first case and \$120 in the second. Reckoning the wages of the teamster at two dollars per day, the items amount to \$270 and \$360.

These would be the figures, at a low estimate, if the contrasted roads had equal grades; yet every one knows that the poor character of the road-bed is sometimes not the greatest waste item. The wear on horse flesh, harness, wagon, and loss of time due to the innumerable short and long steep grades of the unimproved and poorly located dirt or cobble road is at least equally great. To obtain the figures necessary for an estimate of the relative power required to drag a load up an incline, we may say that they vary, practically, as the tangents of the angles of the grade; thus, for example, if on a grade of five feet in a hundred, the resistance due to gravity is practically one-twentieth of the entire load including the weight of the team, on an incline of ten feet in a hundred it may be put at one-tenth.

Such grades and steeper ones are met with in the eastern part of the State on almost every mile of road. Often the creek crossings are nearly impassable, and it would be hard, indeed, to cover the facts by adequate figures. A single place of this kind in a road sometimes entirely prevents the farmer during half of the year from going to town with his farm produce. Besides this, the continual jolting of heavy vehicles over rough and badly kept roads strains the horses in such a manner as to shorten their lives, and to develop in them such diseases as often render them unfit for heavy work. The writer has figured the average loss from bad roads for the average farmer at \$300 per year. Counting all the loss

items, it is certainly too low rather than too high. What will the loss amount to for a township? What will it be for a county? What for the whole State?

AN IMPROVED BARN YARD.

BY PROF. C. C. GEORGESON.

ONE of the College barn yards has this summer been reconstructed in a manner which I trust will not only prove to be of unspeakable comfort to the cattle and those who handle them, but also a useful object lesson to students and visitors. Those familiar with the premises know that the yards have a decided slope from the barn eastward to the little creek which in rainy weather keeps up a merry babble on its course to the Blue. Now, although it has been the aim to haul the manure out to the fields during the winter as fast as it accumulated, this has for various reasons not always been practical. Manure from the stables would collect there for longer or shorter periods with the result that every rain washed out the most soluble, and therefore the most valuable fertilizing materials. These materials were lost to the fields through the coffee-colored streams that leisurely meandered from the manure pile toward the creek. In addition to this, in a rainy time the constant tramping of the cattle caused the surface to be worked into a knee-deep and impassable slush—the normal winter condition of nearly every yard in the West. Both of these evils—the waste of the best portion of the manure, and the ever present mud—have been remedied in the south yard. In the first place, a broad, shallow basin has been constructed by means of plow and scraper, in which the manure will be kept, and which will retain all liquids and prevent waste. And, in the second place, the greater portion of the yard has been paved in a most substantial manner with rock taken out of the neighboring hills. The impassable, miasmatic slush in that yard is a thing of the past. If at any time more liquid accumulates in the basin than can be absorbed by the long manure, it is easily removed by making a miniature well of a barrel placed in the center, and attaching thereto a small pump which will discharge through a piece of hose. The surplus can thus readily be transferred to a tank-cart and drawn onto the grass land or wherever liquid manure may be used to advantage.

This same improvement is needed in ninety-nine out of every hundred barn yards west of the Mississippi river. Will it pay? It will pay a hundred-fold in cleanliness, in comfort, in the increased ease wherewith the cattle can be handled, in the saving of manure now so woefully wasted. It pays for the same reasons that good houses, good barns, good wells, and good fences pay. It is a permanent improvement which increases the value of any farm by more than its cost.

Too many of our farmers have not yet learned what the real value of the manure pile is. They do not fully realize that it represents increased yields of corn and potatoes and grass and wheat, and that this increase is added to the profit on the crops, as the cost of application is not to be compared with the returns. Our brethren in the East were slow to learn it, and now, with exhausted farms, dependent upon artificial fertilizers, they mourn the fact that the lesson was brought home so late. So it will be here unless their experience is heeded by our farmers. Is the soil too rich to fear manure, you say? Last year, when the College rented a field from an adjoining farmer, we raised twenty bushels more corn per acre on four acres that were manured before planting, than on the rest of the field that was not manured. Save your manure this winter; save it with care,

and apply it to the corn ground: you will rejoice at the outcome. The manure pile is a gold mine, and not, as some apparently regard it, a necessary evil—the abominable but unavoidable consequence of having stock on the place.

COLLEGE EDUCATION.

BY T. W. MORSE, '94.

A COLLEGE education is looked upon by too many young farmers as a means of getting them off the farm, rather than as something that will better their condition on the farm. They are astonished at anyone who returns to the farm after graduating, and take it as an evidence that higher education doesn't amount to much.

Those of us who go to schools of short-hand and telegraphy do not realize that, though these schools give us a way of making a living, in less time, perhaps, than such a college as this, they do not, and never can, enable us to so much enjoy that living.

Perhaps in no one of the many branches taught in this school do we get sufficient training to fit us for work in that line, yet what we do get forms an excellent foundation for special study should we wish to follow it, and enables us to understand any ordinary subject.

The question is often asked, "How does the study of botany, or chemistry, or entomology help the farmer?" Maybe the farmer does not make any money directly from his knowledge of these sciences. Yet surely the man to whom every plant or insect is an acquaintance, and to whom the use of feed, medicine, and manure means certain chemical reactions followed by some definite results, enjoys life, works more intelligently, and is more independent than the man who sees only the bug or the weed, who gives his sick animals whatever the "hoss doctor" tells him, and who sees in his feed and manure only a fattening of stock and an increase of crops.

Nor is "book learning" by any means the principal thing we get by attending college? This is especially true of the students from the farms, whose acquaintances have been few, and whose social opportunities have been limited. The meeting and competing with others help one to form some idea of what he ought to be himself.

A riding master once said that his first lesson was to show the pupil how little he knew. If his theory was correct, the first step in becoming of any real importance would be to learn one's own insignificance, and in no place can this be done better than in a college where one associates with the most intelligent class of people, and sees the work of the best scholars.

In spite of prejudice, college education is becoming more popular, and there are many now who, instead of using it as a means of escape from farm work, are ennobling their profession and are living lives more for the living than for the having.—*Webster Reporter*.

NOTES ON WHEAT.

BY PROF. C. C. GEORGESON.

WHEAT seeding on the College Farm is practically finished. The weather has been propitious, the soil in excellent condition, and the work has progressed rapidly during the last few days. The area in wheat this year is about thirty acres, all of which is under experiment as heretofore. The number of varieties have been largely reduced. Of the 240 sorts grown here the past two years, less than fifty have been retained for further test. All that have not averaged thirty-five bushels or more to the acre during the time they have been on trial have been rejected, and those only have been retained which have gone above that figure. These will be reduced year by year until only the best very remain. The object is not to grow a large number of va-

rieties in order to have many samples to show, but to test them side by side under the same conditions, and by this comparison learn which are worthy to be recommended for general culture. Prof. Shelton has kindly sent the College small samples of some thirty varieties from Australia, some of which are of American origin, some English, and some Australian, but all of which have been grown there long enough to be thoroughly acclimated. Their success here will be watched with much interest, especially as some of them are claimed to be rust proof. Several other new and promising kinds have been obtained from various sources, and will take the place of the rejected ones.

It may be noted as a curious fact that varieties grown east of us on nearly the same latitude as our own have, as a rule, done better here than those obtained from other regions. English and French varieties have so far been well nigh total failures.

Aside from varieties, the line of experiments in wheat growing this year will in the main be like that of last year, just recorded in Bulletin 33. In some features the work will be extended, as, for instance, early and late seeding.

The question of early versus late plowing is, to judge from the practice of our farmers, as yet unsettled. Many who theoretically admit that early plowing is best, still in practice plow and sow till late in the season. To give it a practical test, a strip a few rods wide running clear across the field was left when the rest was plowed early in August, and was soon covered with a fine crop of weeds. It was plowed some two weeks ago and seeded a couple of days later. At the same time and in the same manner we seeded a similar strip alongside of it, but which was plowed early. The wheat on the early plowed strip has been up more than a week and shows its lively green nearly a mile away, whereas the wheat on the late plowed strip sowed the same day is just now appearing above ground. This is a remarkable and noteworthy fact. The probable explanation is, that having been rather dry for some time, the early-plowed and well-settled ground was moist an inch or so below the surface, and the seed germinated at once; while the newly plowed and loose seed bed, resting on a porous bed of weeds, dried out rapidly after being turned, and lacked the moisture to start the wheat so promptly.

IN accordance with the custom established sometime ago, the students will continue to take part in the editorial work of the INDUSTRIALIST. Though at first in the nature of an experiment, we believe we can modestly say that the students' part in the paper has lessened neither its usefulness nor attractiveness. We believe that it has been a benefit to the students, not only to those contributing, but, in a measure, to all. Like all other people, students are likely to be more particular with their work when there is any chance of its being made public; and since class and society work have become the prey of the student editors there has been a marked improvement in the literary and rhetorical efforts of the students. The students' share has strengthened the friendships between the parents and friends of students and the INDUSTRIALIST. While the articles by members of the Faculty have been none the less interesting, the articles by students give readers who have children or friends in College an opportunity to see what "their" student and his fellows are doing in the literary line. From what we can learn, the visits of the INDUSTRIALIST, since the student articles became a feature, have been more eagerly welcomed by the home folks than ever before. That under their charge the space devoted to articles by students will be as attractive as ever, and

that the tie between the paper and its readers may be strengthened thereby, is the wish of the Student Editors.

E. C. ABBOTT.

LAURA G. DAY.

ALBERT DICKENS.

THE road conventions recently held in Iowa and Missouri will without doubt be productive of much good. Other State conventions will be held, and an interest will be aroused that will lead in the near future to the construction of a few sample highways, at least. We may next expect the political parties of the country to commit themselves to good roads.

As our roads are a disgrace to civilization, Bill Nye suggests that before we undertake to supply sealskin covered bibles with flexible backs to the Africans, it might be well to devote a few dollars to the relief of galled and broken down horses that have lost their health on our miserable highways.

WIDE WAGON TIRES AND GOOD ROADS.

It is idle to undertake the maintenance of a dirt road in good repair while it is subjected to the cutting and grinding effect of heavy loads hauled on narrow-wheeled vehicles. No matter with what care your road may have been originally constructed and rolled to a compact surface, rains will soften it and narrow-wheel tires will hasten the work of destruction so as to quickly efface the good effects of your labor and impede the passage of traffic. Nothing could be more costly and nothing more ridiculous than the custom followed by American farmers and merchants who, for the last hundred years, have been loading their produce and merchandise, often to the amount of one ton and upward on each wheel, and hauling these loads about over dirt roads on 2½-inch wheel tires. Use, observation, and the most careful experiments have combined to prove that the wheels with 2½-inch tires produce more than double the wear on a road that wheels with 4½-inch tires would cause. The wide tires tend to roll the road and keep it smooth and passable, while the narrow ones cut and destroy even the best roads and increase the dangers and difficulties, besides adding to the expense of hauling upon whatever kind of vehicles used.

Another advantage of wide tires is, that under many conditions the wide-tired vehicle may be hauled with a much less expenditure of force than the narrow-tired one. You know that much time is frequently lost by the farmer who is unable to hasten his spring work in the field because the wet condition of the ground forbids the use of a wagon on cultivated land. The use of wide tires on the wagon wheel will generally enable him to take up this work much earlier, and to perform it more quickly and cheaply than can be done with his narrow-wheeled wagon. In fixing the width of wheel tires so as to be properly proportioned to the weights of the different loads which they are designed to carry, I would recommend the following dimensions:

Load on each wheel.	Width of tire.
1,000 to 1,200 pounds	4 inches
1,200 to 1,500 pounds	5 inches
1,500 and upwards	6 inches

Foreseeing the objection which might be raised to the cost of supplying vehicles now in use with wide-tired wheels, an ingenious inventor has placed upon the market an adjustable wide tire, which may be made of any desired width, and so constructed as to fit any of the wagon wheels now in common use.—*Isaac Potter, in Good Roads*.

The economists who in the early part of this century feared a growth of population which could only be checked by war, pestilence, and famine took no cognizance of agricultural chemistry. Apparently no limit can be placed to the product that may be put at the disposal of man, providing he keeps pace with the methods of science.—*Our Grange Homes*.

BULLS FOR SALE.

The College has a few fine Shorthorn bulls which will be sold reasonably. Also a Hereford and a Helstein-Friesian bull. They are all animals of much individual merit and of the best breeding. They can be sold cheaper now than in the spring. Professor Georgeson will answer all inquiries concerning them.

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.
 Winter Term—January 8th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Commencement.
 1893-94.

Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Bound volumes of the *INDUSTRIALIST* for 1891-2 were received from the State Printer this week.

Professors Popenoe, Georgeson, Hood, Mayo, and Mason attended the State Fair last week.

Rev. E. M. Randall and wife, of Washington, Kan., were interested visitors to the various departments on Tuesday last.

Word comes from Australia that Prof. E. M. Shelton has been re-engaged for a term of three years as Agriculturist at Brisbane.

The student editors for the fall term—Laura Day, E. C. Abbott, and Albert Dickens—have something of interest to say in another column.

Mr. John T. Copley arrived from Nebraska with his family household goods, last week, and is settled in his new home, lately purchased from Secy. Graham.

Many delegates to the convention of the Epworth League were interested visitors yesterday forenoon in an all too brief inspection of buildings.

Phoebe Haines, instructor in Drawing for two years past in the New Mexico Agricultural College, is taking a post-graduate course in Household Economy and Drawing.

Delegates from the Junction City Camp of Modern Woodmen visited the College on Wednesday afternoon of last week under the guidance of Messrs. H. Ewalt and C. H. Paine.

The attendance so far this term agrees almost exactly with that of one year ago. The enrollment, today, including post-graduate students, is 434. The Fourth-year class numbers forty-one, with three more to come in a few days.

Bids for contract to haul the College coal for the season 1892-3 will be received by Pres. Fairchild up to Saturday, October 1st. The bids should state price per ton, railroad weights, for delivering promptly from cars to places designated on the College grounds.

Prof. MacGruder, Agriculturist at the Oklahoma Agricultural College, Stillwater, spent yesterday at the College in an inspection of methods. He was much interested in Prof. Georgeson's wheat experiments, and took many samples of seed for trial in Oklahoma soil.

Several thousand copies of the *INDUSTRIALIST* were printed for distribution at the State Fair, last week, but owing to the failure of the railroad company to ship promptly, as promised, they reached the grounds so late that but half of them could be used.

The Library gains Vol. VI. of the *Inland Printer*, bound, by donation of Mr. G. E. Stoker, '90. This volume of the *Inland Printer* was taken from the Printing Office a year or more ago, and was never returned. If this meets the eye of the person who has the missing volume, he is reminded that it will yet be thankfully received, and "no questions asked."

With five public receptions since the term opened a week ago, students are certainly made to feel welcome in their college home. The first gathering was on Friday evening of last week, being a joint reception by the College Christian Associations. Last evening socials for the benefit of students new and old were held at the Presbyterian, Christian, and Methodist churches, and at Mr. Whitford's by the Congregational people.

The first Friday afternoon exercise of the term was conducted by Prof. Olin, who, in a lecture on "Failures," mentioned some causes of the existing evils of the day, and pointed out remedies for the same. Among other things, he dwelt on the advantage of possessing a reserve force, which

may be obtained by constant effort in using the opportunities presented to the individual. He placed special emphasis on the necessity of physical culture to insure a proper development of the mental faculties. On the whole, the lecture was filled with good thoughts that progressive minds would do well to consider.

The Hamilton Publishing Company, of Topeka, present the Printing Department with a hundred copies of "Rules for Proof-reading," with illustrations of characters used. The sheets will be put to good use by the students.

On Friday evening, September 16th, during the State Fair at Topeka there was held at the Copeland Hotel an informal gathering of graduates and former students of the College. Although called on short notice, the large number whose names follow were present: W. J. Lightfoot, '81, and wife, Grace Strong-Lightfoot, Third-year in 1880-'81; Jacob Lund, '83; E. H. Perry, '86, and wife, Ada H. Quinby-Perry, '86; C. E. Freeman, '89; Ina M. Turner, '89; C. J. Dobbs, '90; F. A. Waugh, P. S. Creager, W. S. Arbuthnot, '91; R. L. Wallis, G. W. Wildin, H. A. Darnell, '92; and Prof. Cowles, Mrs. Myra Threasher Neal, Alice Atwood, H. W. Mattoon and sister, Harvey L. Freeman, Harry Guthrie, Alice E. Abbott, F. K. Reasoner, C. S. Criswell, J. T. Rumble, Mary Lyman, Margaretha Horn, Perry Law, R. B. Abbott, C. S. Green, A. H. Hepler, Prof. Popenoe, Prof. Hitchcock, Prof. Mason and wife, and Regent Forsythe. Music was rendered by Miss Lyman and C. E. Freeman, and speeches were made by nearly every one. All expressed pleasure at so unexpected and agreeable a meeting.

One of the most interesting exhibits at the State fair was that made by the Agricultural, Horticultural, Botanical, and Chemical Departments of the State Experiment Station in the State Agricultural College Building, just south of the Exposition Hall. Tastefully arranged on both sides of the hall, and on a staging through the center, was a bewildering array of agricultural and horticultural products, all of which are at the present time the subjects of extensive experiments. It was no part of the idea of the various departments exhibiting to make displays of exceptionally fine products, but rather by giving an exhibit of the work being done by the station, to arouse a more general interest in its investigations. There were 250 varieties of threshed wheat, with as many varieties of wheat in the straw; about 60 varieties of oats, over 125 samples of ear corn, 5 varieties of Japanese beans, 110 varieties of grapes, 48 kinds of bush beans, 85 of peas, and 47 of sweet corn. The Chemical Department showed many samples of sorghum cane, of which the "Kansas Orange" is announced to be the best. The Agricultural press generally give high commendation to the exhibit.

GRADUATES AND STUDENTS.

Eusebia Knipe, '91, teaches in the Manhattan schools.

E. S. Mudge, Third-year in 1890-1, visited College friends yesterday.

Dora Thompson, Second-year in 1890-1, enters the Third-year class.

G. L. Melton, Third-year in 1890-1, joins the present Fourth-year class.

F. E. Cheadle, student in 1890-1, enters Second-year classes this term.

F. J. Yeoman, student in 1890-1, enters Second-year classes this term.

W. H. Austin, student of last year, will attend Ottawa University this fall.

Fanny E. Waugh, '92, will teach this winter near her home in McPherson.

C. J. Peterson, Third-year in 1890-1, joins the Fourth-year class this term.

J. Frost, '92, was a delegate to the Epworth League Convention held this week.

Miss Ella Eden, of Eskridge, visited Eusebia Mudge of the Fourth-year class Thursday.

R. C. Wells, First-year in 1891-2, will spend the next year in the Kansas City High School.

H. B. Gilstrap, '91, spent two days last week with College friends. He will soon take sole charge of the *Chandler (Ok.) News*, G. V. Johnson, '91, retiring to enter the political arena, he having

been, as previously noted in these columns, nominated for County Superintendent by the Republicans of County "A," Oklahoma.

P. S. Creager and W. S. Arbuthnot, '91, spent a few hours at the College on the opening day.

H. G. Gilkerson, Second-year in 1891-2, hopes to enter Michigan University for further study this fall.

Florence E. Fryhofer, Second-year in 1891-2, is teaching the upper Fancy Creek school west of Randolph.

Delpha Hoop, '91, was a visitor several days this week. She will again teach in the Allingham district.

D. B. Brummit, an old student, was among the Epworth League delegates who visited the College yesterday.

Warren Knaus, '82, editor of the *McPherson Democrat*, found time to visit the College between trains last week.

Callie Conwell, '91, writes of pleasant surroundings in her work as teacher in Spencer Academy, Nelson, I. T.

Jno. Davis, '90, asks that fifty cents' worth of College news follow him to Wakefield, where he has charge of the schools.

C. A. Murphy, '87, is Principal of the High School at Kingman, Kansas. He is still pursuing studies in higher mathematics.

G. W. Wildin, '92, took two days from his labors in the A. T. & S. F. Ry. draughting office to visit his Alma mater last week.

E. F. Nichols, '88, takes the Chair of Physics at Colgate University at \$1.500, with the privilege of two years' study in Europe.

L. C. Criner, '92, is to teach an eight-months' school in McPherson County. He writes for the *INDUSTRIALIST* from Spring Valley.

Mary E. Bland-Thackrey, student in 1884-5, died this morning of consumption, at the home of her husband's parents in Manhattan.

Ivan B. Parker, '92, and Mary L. Findley, student last year, were married September 16th, by Rev. D. C. Milner, of Manhattan.

C. W. Helder, Fourth-year in 1889-90, now in the employ of the Winslow Iron Company, Chicago, is visiting his home on College Hill.

Mary Pierce, Second-year in 1890-91, is Principal of schools at Wayland, Iowa, and is assisted by her sister Grace, Second-year in 1888-9.

B. H. Pugh, '92, called last week before taking up his course of study at Washburn College, where he plans to spend two or three years.

Ivy F. Harner, Fourth-year, is detained from College a few weeks, but will keep up her studies and join her class at the earliest date possible.

Lora L. Waters, '89, teacher for several years in the Junction City schools, is taking a post graduate course in Household Economy and Botany.

H. C. Cobb, Third-year in 1891-2, orders the *INDUSTRIALIST* sent to him at Muskogee, I. T., where he is learning the drug business in his father's store.

J. B. Thoburn, Third-year in 1891-2, writes from Peabody of good health gained by a summer's residence in the mountains, and of his plans to return to College next term.

Sam Kimble enjoyed a visit from Ed. F. Colburn, an old school mate at the Agricultural College, Sunday. Mr. Colburn is in the law and real estate business in Salt Lake City.—*Mercury*.

W. T. Swingle, '89, employed in the Division of Vegetable Pathology of the United States Department of Agriculture, stationed temporarily at St. Louis, spent Sunday of last week at home.

G. E. Stoker, '90, spent the last day of his vacation at the College. He has returned to Harvard for another year's study in political science and the languages, and will graduate next June.

G. W. Fryhofer, Second-year in 1891-2, visited the College several times this week between the sessions of the Epworth League Convention. He will teach for a year, and then finish his course here.

A recent number of the *Sitka (Alaska) Herald* states that R. A. Clark, Third-year in 1890-91, who has been teaching industrials in the Sitka Mission,

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has been appointed aid de camp with the rank of Lieut. Col. on the staff of the Governor of Alaska; and with the Governor and other officials will leave Sitka about the fourth of October next to participate in the ceremonies at the dedication of the World's Fair buildings.

Jennie and Julia Greene, Second-year students in 1889-90, were two of the singers dressed and arranged to represent the American flag in the parade at the National Encampment, G. A. R., at Washington.

D. E. Bundy, or "Farmer Bundy," as his friends persist in calling him since he succeeded in clearing \$1500 in one season from a small farm, took a brief respite from agricultural labors one day last week and spent a few hours at the College.

Eugene Snodgrass, First year in 1879-80, who is now a missionary of the Christian Church at Tokio, Japan, writes a most interesting letter descriptive of his experience and mode of living among the "Yankees of the Orient."

J. S. Hazen, '88, stationed at Des Moines, Iowa, as Assistant Weather Observer, writes on "Artificial Rain-making" in the August number of the *Iowa Weather and Crop Service Bulletin*. The article is reproduced in another column.

Mrs. Lucy VanZile-Cobb, Third-year in '86, writes in behalf of several would-be students at Wagoner, I. T., where A. C. Cobb, '87, has the reputation of being a first-class mechanic, thanks to instructions at the Kansas State Agricultural College.

P. M. Kokanour, Third-year in 1885-86, donates a specimen of rice measuring about 5½ feet, from the rice fields of W. M. Wright, '87, of Lake Arthur, La. Mr. Kokanour and wife are visiting with relatives and friends in Manhattan and Clay Center.

PHOTOGRAPHING FLYING BULLETS.

Mr. C. V. Boys, in a lecture at the South Kensington Museum, London, has shown what remarkable success has been attained in photographing flying bullets and other rapidly moving bodies by the light of the electric spark.

The spark is generated by the discharge of a Leyden jar, there being in the conductor two breaks which the current has not pressure enough to jump. But when the bullet or flying object makes contact with one the spark is instantly emitted from the other. As, then, the duration of this spark may be much less than even the one-millionth of a second, it is far and away in the excess of the speed of the bullet, and an accurate view is procured by the camera. Among the things which are thus made as distinct as if the objects photographed were immovable are the form of the bullet, its direction and inclination, the balling up of the air in front of it, the long drawn out vacuum in the air behind it, and, the various wave vortices and contortions of the atmosphere through which it is passing.

In Mr. Boys' lecture, these photographs were enlarged into gigantic pictures on the screen and made perfectly clear in all their singular and interesting details to the audience. Some of the most remarkable effects were connected with the passage of a bullet through a sheet of plate glass. Others gave views of the strains set up in the plate glass around the clean perforation the bullet had made. The reason of the familiar fact that a bullet will cut a clean hole in a pane of glass is now made additionally clear, as it is demonstrated that the speed of the bullet exceeds the speed at which cracks in the glass can progress. The result is that the round portion of glass in front of the bullet is pounded, locally, into powder before the exterior portions have time to start into motion. Various other important acoustic and optic data are being developed in the study of the phenomena of rapidly moving bodies; for instance, the effects of the dust and vapor envelope of the bullet in the transmission of sound, and also how, by a series of differently inclined diagonal perforations through the bullet, through which the capacity of light can be observed, the effects of rotation can be ascertained, as well as details of the differences of spin effected between that given by the barrel and that produced in the rapid passage of the missile through the air.

President Quayle, of Baker University, has received a call to the pulpit of the Grand Avenue M. E. Church at Kansas City, but has announced his intention to remain with the University.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

An Indian graduate of Haskell Institute, of the Seneca tribe, has entered the University Law School at Lawrence.

Prof. Hendy of the College of Emporia has been among the unfortunate passengers of the *Rugia*, quarantined in New York Harbor.

The Salina Normal folks are arranging for a grand excursion of their students, ex-students, and teachers to the World's Columbian Exposition.

The Salina Normal has grown from 23 students in the fall of '85 to an enrollment of 634 for last year, and all this without a dollar in aid from any source.

Kansas City, Kans., is likely to become the seat of a Methodist University. The citizens have subscribed 65 acres of land and \$125,000 for the purpose.

The Abilene *Monitor* publishes the names of thirty-two teachers of Dickinson county who have salaries of from \$45 to \$60 per month, the majority receiving \$50.

The University student who destroyed a dozen hats at the senior reception at Lawrence the other night is probably preparing for a course at the Topeka Reform School.—*Kansas City Star*.

At the teachers' examination in Washington county, there were 120 applicants. Of the ninety-two certificates granted, there were five first grade, forty-three second grade, and forty-four third grade.

All of the younger generation of college students in Kansas will learn with regret the news that Dan Crew of Lawrence is dead. For the last eight years young Mr. Crew has been a feature in every intercollegiate gathering in Kansas. His singing had become as important a factor in the meetings of the State Collegiate Oratorical Association as the orations were.

One of the lady teachers of the Larned city schools, who is the mother of six children, has undertaken the fulfillment of an unusual contract. She will drive six miles to her school on Monday morning and back to her home on the farm on Friday evening; bake, wash, and iron for the family, and keep up her reputation among her neighbors as a model housekeeper.

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, S. C. Mason; Vice-President, J. T. Willard; Secretary, Lottie J. Short; Treasurer, F. A. Marlatt. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, Fred Hulse; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halstead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donovan; Treasurer, John Patten; Critic, M. F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell, D. S. LaSelle, J. A. Scheel, and T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Kniekerbocker; Vice President, Elsie Crump; Recording Secretary, Florence Corbett; Corresponding Secretary, Lorena Helder; Treasurer, Elen Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

September 16th
The first meeting of the Alpha Betas for this term was called to order by Vice-President C. H. Thompson. The program was opened by congregational singing, followed by prayer by J. E. Thackrey. Roll call disclosed the fact that there were a large number of old members back again, ready for work. Election of officers was the next order taken up. The officers elected are as follows: President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, Fred Hulse; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Miss Halstead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, Onie Hulett. Miscellaneous business. Assignment of duties. Report of Critic. Reading of minutes. Congregational singing and adjournment.

September 17th
The Webster Society was called to order at 8 o'clock by M. F. Hulett. E. C. Pieutz was elected chairman pro tempore. Prayer by C. D. McCauley. The debate was passed, and the Society

listened to the Webster Reporter, by A. Dickens. Music by the quartette, and later in the evening R. J. Peck favored the Society with a piece on the organ. Under election of officers, the following were elected for the fall term: President, A. Dickens; Vice-President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donovan; Treasurer, John Patten; Critic, M. F. Hulett; and Marshal, E. H. Freeman. The Board of Directors is composed of the following: G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, and B. F. S. Royer. Assignment of duties, reading of minutes, and report of critic. Adjournment, 10:30.

E. M. S. C.

September 17th.

The Hamiton Society was called to order by President F. R. Smith. R. M. Laundy led the Society in devotion. After the reading and adoption of the minutes, the Society proceeded to elect officers for the fall term. Officers elected were as follows: President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors elected were C. R. Hutchings, J. D. Riddell, D. S. LaSelle, J. A. Scheel, and T. E. Lyon. Owing to the lateness of the hour after election of officers, the programme was carried over for a week. Under the head of new business, the members engaged in quite a spirited discussion on topics of the hour, showing by the interest they took in the proceedings that they are determined to keep the Hamilton Society well to the front. J. D. R.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

VARNEY'S BOOKSTORE.—Popular Headquarters for College Text-Books and Supplies. Second-Hand Books often as good as new. Call when down town, Always glad to see you.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler." Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, Jewelry, and Gold Spectacles, also Musical Instruments. '75.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silver-ware, Spectacles, Clocks, Fountain Pens, Gold, Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

D. R. G. A. CRISTE, Dentist, 321 Poyntz Ave. The preservation of the natural teeth a Specialty.

PHOTOGRAPHS.

D. EWEY, the photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue.

BOOTS AND SHOES.

R. E. RELIABLE Boots, Shoes, and Rubbers, direct from the leading Eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

LESL E. SMITH.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class, special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

S. HULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

SHAVING PARLOR.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

GENERAL MERCHANDISE

THE SPOT CASH STORE is Headquarters for Dry Goods, Novelties, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

E. B. PURCELL, corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

MANHATTAN, KANSAS, SATURDAY, OCTOBER 1, 1892.

NUMBER 6

THE INDUSTRIALIST.

PUBLISHED WEEKLY
BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, living-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Application for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

DEFINITE READING.

BY PROF. O. E. OLIN.

A GREAT deal of one's mental growth comes through reading, and reading what one likes. If such growth is to be systematic, reading, that is, what is considered one's staple reading, must be chosen with somewhat the same care that studies are chosen. In the modern university course a student early selects from the curriculum a major study, some branch of which may be pursued in each college year. While this does not much restrict his studies, it comes to hold the most important place in his education, and gives him the advantage of not only knowing many things fairly, but of knowing some one thing well.

So in one's reading, there should come to be some definite line of literature that may be considered the special field—it may be history or biography or travels or science or fiction; and this should have the first place in the scheme of winter reading. Of course, one need not be confined to this field; he must, in fact, reach out into the other lines of knowledge, but this may be considered for the time being his principal work. This must be done systematically; outside or general reading may be done at any time and with no particular plan.

It is often the case that young people have no special liking for any class of books. They can then profitably browse in different fields till they awaken a taste that they can afterwards cultivate. If a boy does not know whether he likes history, let him try Prescott's works, or the Story of the Nations series, or even Ivanhoe and Kenilworth. If he has no taste for biography, let him read Irving's Life of Columbus and Life of Washington. Let him also read some works on popular science, Curtis' Nile Notes, and Bayard Taylor's works. All these will help to educate him, and will help to find his special liking.

Because a course of reading is in a definite line it need not be narrow. If, for instance, one should decide to make his winter's reading on the development of England, he could lay out an almost fascinating course that would include history, biography, travels, essays, fiction, and poetry. The same is true of nearly all other lines,—each has plenty of complementary and supplementary reading.

HOW TO READ.

Not too fast. Not too much at a time. Not for the sake of reading so many pages a day. Frequently some one page has more material for thought than half a dozen other pages. Books that are to be read for their knowledge or argument must be read slowly and carefully with frequent opportunity for consideration. No words or allusions must be passed until thoroughly understood, and no thought left half obscured. A good plan is to have a kind of journal in which is recorded the date of beginning and of finishing a book, the advantages derived from it, and the general impression it has left. To this may be added a critical review of the book. Such a record kept for a few years would be of great value to any reader.

WHEN TO READ.

All reading for intellectual profit should be done when the mind is reasonably free from weariness or worry. It is a mistake to think that when tired out from work or study one can read to much mental advantage. The hours for reading should be chosen when real strength can be given to it, in order to derive the most benefit. There are books, however, that may be read for recreation. One may take them up when utterly exhausted and grow rested over their pages.

Such are Addison's and Lamb's essays, Irving's Spanish Papers, and the delightful Reveries of Ike Marvel. These may be called "night-cap books," for they soothe one and put him in a frame for slumber, without any reproach to the author. One should do his special reading while fresh and vigorous, if possible, but he should also have at hand some volume of this kind, not only for the rest it brings, but that he may become more acquainted with delightful thoughts that leave their impression of beauty even after the book itself is forgotten.

CROPS AND THE SEASON.

BY PROF. G. H. FAILYER.

THE season just closing is one of those very peculiar ones which illustrate so vividly the results of diversified farming. The writer has visited many portions of the State during the summer, and has had unusual opportunity to observe the crops. To such extent as these observations have been made en route, from car windows, the more level country over which the roads run have colored the impression of the whole. But it is not likely that any distorted view will thus be gained, since railroads in Kansas are not interfered with much by the inequalities of the surface. Further, as some sections of the State were seen in early summer and not since, impressions then gained may have proved erroneous owing to changes of weather in the after part of the season.

The one striking truth that was forced upon one is the fact that in no section of the State have all crops been equally favored by the weather, and second to this, that no one crop has found conditions all over the State favoring it.

The wheat crop is the one that has been successful over the greatest extent of territory, yet in the southeastern portion of the State a limited acreage was sown and a light yield obtained. In all other sections, a good to very heavy yield was secured, and it was generally of good quality. In the western half of the State, and especially toward the southern part of this region, an unusually large area was sown to wheat, and an exceptionally heavy crop was harvested. Had the farmers here put all their ground in wheat this year, instead of reserving some of it for oats and corn, they would have found it very profitable. But in the east and south the opposite is true.

The oat crop was heavy in the whole of southern Kansas, but was light in the north, especially in the north central portions. The dry weather came on about the same time both north and south, but the oat crop was so nearly mature in southern sections that it was injured but little. This crop has not been a very important one in Kansas in past years, and no large amount seems to have been sown the past spring; yet, in a considerable section of the State, the oat crop has been very good. The hay crop has been very light in most parts of the State, but, like oats, grass has done well in the south and southeast. The first cuttings of tame hay were exceedingly heavy wherever tame grasses are grown, but the dry weather cut the later growth short.

Corn, being a crop that is influenced by the whole season, is the most variable of the great staples taken throughout the State. In the northwest and the east, the crop is most nearly normal, but all through the west it is comparatively good. A belt north and south just east of the center of the State has been cut shortest, and this is most apparent in the southern part of the belt. In the extreme south are sections where corn is nearly a failure. This relatively; but as a whole the crop is quite light.

Flax is practically nothing at all over the State.

The above observations upon the general character of the crops of the State show conclusively that no one crop would have been profitably cultivated exclusively throughout the State. It is true that wheat has generally been good, but not so in all places. It is in such seasons as this that the growing of several kinds of crops brings the best comparative returns. The advantage of diversified farming are due to such facts as these, and to the additional fact that thus the labor of the farm is distributed through the year, and its forces and appliances are kept more constantly employed.

A WESTERN HOMESTEAD.

BY MINNIE REED, '86.

If you have ever been away out at sea on a calm day you can easily imagine the appearance of the landscape out on the level plain of Western Kansas. Here you can stand in your own doorway and look across miles of beautiful golden grain, and long stretches of the dull green buffalo grass, without anything to interrupt the view but perhaps an occasional sod house or a wind-mill whirling in the dim distance.

If, near noon on a very warm day, you look off to the east or west, you may see what seems a large lake shimmering in the sunshine, reflecting trees and bushes in its clear depths. Perhaps it may at first appear like flames of fire rising and falling with the breeze, but on a second look it seems like a great lake but a mile away.

A few hours later the lake has vanished mysteriously, but as the sun nears the horizon in the evening, or as it rises next morning, you are again surprised to see three or four towns just across the farm where the lake was before. Your neighbors' houses, which were, a short time ago, out of sight behind a gentle swell of land several miles away, seem so near that you think you might step over for a neighborly chat. The towns scattered around at various points, that before were from eight to twenty miles away, now seem so near you could almost count the houses on the streets. A half hour later, and the towns and the neighbors have disappeared as mysteriously as they came. You are again far from human habitation, where you see only an occasional long-eared jack-rabbit as he jumps over the wheat field, stopping now and then to nibble the grain, or perhaps a solitary hawk circling over head watching the little gray snipes.

These mirages are always a source of interest and fascination and keeps the country from seeming monotonous by this trick of lifting distant objects suddenly into view.

Here, too, the very air you breathe fills you with the spirit of independence, energy, and enterprise. The limitless stretches of level plain seem to reveal to you the unlimited possibilities of life, and you feel that you are indeed architect of your own fortune, and able to surmount any obstacles.

Filled with this spirit, the homesteader begins to build his new house. He has very little money, only his team, his stock, and a pair of strong hands; but he is not dismayed. The western plain does not furnish timber for logs, but something just as good. The tough sod for the walls and shingles, with just enough timber for sills, floors, and roof, are all the material he needs to make a very comfortable house. The plaster and white-wash he makes from the native gypsum, ready to mix with the sand by its side in the neighboring draw. The sods are laid up in a wall like stones, covers the board roof which has a layer of tar paper just beneath. These houses when well built are cooler in summer and warmer in winter than either stone or frame. When plastered and white-washed, they appear like any other house inside; and may be made just as cosy and pleasant.

It is here that the house-wife has use for prac-

tical training; and needs to apply all her science in adapting her housekeeping to circumstances. If she is wide awake and progressive, many new combinations, both for furnishing and in preparing food, will occur to her. With boards, boxes, and bright chintz, she can transform this one, two, or three-roomed sod house into a really cozy home. As fruit and vegetables are scarce, she finds use for the training in domestic science that every girl gets at our College under our very practical teacher. She will try all of the economical methods with left-overs, and all the palatable dishes she learned to make from milk, eggs, and butter, and probably invent new combinations. The best of puddings become tiresome when there is no fruit for a change, so originality is again in demand.

With thought and work, many very delicious desserts may be made with plenty of eggs, milk, and butter; which of course every farmer produces. Then, too, even fruit that is very appetizing can be manufactured from the watermelon, which never fails in Western Kansas. Watermelons, fresh or preserved, or made into pickles, both sweet and sour, will fill that long-felt want of fruit quite satisfactorily. The busy housekeeper finds when she has her table daintily set with nice white linen, and the food well cooked and varied, that after all one can live comfortably in a way out on a western homestead, if it is dry and windy.

So we should not say that "knowledge is power," but knowledge with manual training is conqueror of even the desert, and will make it to "blossom as the rose."

ARTIFICIAL RAIN-MAKING.

It is the prevalent opinion that great battles cause rain, based on the undoubted fact that many of the noted battles of the late war were followed by storms. But to assume that, because of this alleged sequence, rain may be produced at will by bombarding the clouds, is entirely fallacious. To sustain this supposed relation of cause and effect, it must be proved not only that all great battles were closely followed by storms, but also that rain originated in the immediate vicinity of the battles and was wholly independent of any general storm movement. But it has never been demonstrated that such was the fact.

We know that the law of storms is shown in a clearly defined progression from west to east, and that within the storm area there is a wide extent of rainfall, varying with the intensity of the movement. Now, if we had daily weather maps covering the whole period of the civil war, based upon reliable data, we could easily determine whether the storms following heavy battles were of a purely local or of a general character; and by that we could have a tangible basis for deciding the question as to the effects of cannonading. But the weather service was not then in operation, and we cannot trace the movement of any particular storm area of that period. It is not possible to disprove the assertion that the concussion of battle produced storms, nor, on the other hand, is it possible to establish that theory by any conclusive evidence.

Mr. Powers, of Delavan, Wis., in his book, entitled, "War and Weather," endeavors to prove that rain has usually followed heavy cannonading, and maintains that precipitation was caused thereby. In elaborating his scientific theory, he asserts that the most of our rain-fall in the eastern and southeastern portion of the United States is caused by the moisture-laden atmosphere from the distant warm currents of the Pacific, which are carried over the mountain ranges and across the burning plains of Nevada, Arizona, New Mexico or Texas, to finally give up their moisture in form of copious rains on the eastern coast.

If there are any reputable meteorologists who believe that any considerable per cent of the rain-fall east of the Rocky Mountains comes from the Pacific Ocean, I have never been able to find their views expressed to that effect. Creely says the upper air currents are squeezed comparatively dry in their passage over the different ranges of mountains. And Finley (also considered good authority) says the "lows" advancing from the northwest show but little evidence of containing any moisture until they begin to feel the influence of winds from the Gulf of Mexico. The most tenable theory is that the moisture which gives us our rain-fall comes mostly from the Gulf and Atlantic,

drawn hither in the east and southerly winds that are caused by areas of low barometer northwest of us. West of the region coming under the influence of those winds we have an area of scant rain-fall, forming an arid region known as the "Great American Desert." The upper currents of air are robbed of their moisture to give Oregon and Washington the rain-fall which deluges the Pacific Coast at certain seasons. Within the arid belt at the eastern base of the Rockies the combustion of all the gunpowder ever manufactured will no more produce rain-fall than will the peevish efforts of such quacks as Melbourne and others of his ilk. Despite all mortal efforts, those of the arid regions must continue to depend upon the modified movement of the "lows" to give them a variable and exceedingly uncertain rainfall.—J. S. Hazen, in *Iowa Crop and Weather Bulletin*.

SWEEEPING THE FARM.

When the farmer returns to the house for meals or for a few minutes' rest, he expects to find the house, every room of it and every piece of furniture, clean, brushed, and swept. He may introduce visitors unexpectedly, and wishes everything in order at all times.

He would be surprised if he found the sitting-room, day after day, in disorder and confusion, and probably his surprise would lead him to make remarks and to scold. The thrifty housekeeper is constantly dusting, sweeping, cleaning, and as a result the house is the pride of every member of the family. The farmer delights to ask his friends into the house, because such neatness, order, and cleanliness prevail.

Order in the house and order outside on the farm sometimes go hand in hand, but often they do not. If the farmer likes and demands an orderly house, why should not the farmer's wife demand an orderly kept farm when she goes out to get the air after her work is done? Now, the farmer may take his ease and read his paper in an untidy room, but not so comfortably as in one where neatness governs, because the eye is offended and worries him.

The farmer's wife is disturbed when she walks abroad on the farm for recreation by the litter that meets and offends her eye. Many things from a wheel-jack to a mowing machine are seen where last used; wagons, parts of wagons, rakes, and rubbish block the way at every turn. This is not a fair return of favor. Neatness in the house should be supplemented by corresponding neatness on the farm. What a commotion there would be in some household if the sitting-room of the house was in such continual confusion as the yard of the house!

It pays to use the broom on the farm, and to use it often. Indeed, positive damage results from neglecting it. Dirt in the house breeds vermin, and rubbish on the farm may produce what is equivalent, literally or figuratively. Let the broom cut its swath from the house and bar a way into every nook and corner of the farm, for the sake of appearance, if for no other reason. A well swept farm builds the farmer's fame as a well-kept house adds to the reputation of the house-keeper.—George Appleton.

One way to make a farm more profitable is to grow and sell such crops as will least deplete its fertility. Plant food removed from the soil must be restored again in some manner if production is to be kept up, and if the crop which absorbed it is sold away from the farm this may prove a pretty expensive thing to do. As showing the proportionate exhaustion of the soil by different crops, it may be stated that a ton of hay takes away eighty-five times as much fertility as a ton of butter. The value of the two is also in diverse proportion, as the hay may sell for \$10 and the butter for \$400 or \$500. A grass farm—the grass being sold—will grow poor unless extraordinary methods are taken to prevent it. The dairy farm must grow richer unless the grossest carelessness is observed. A dairy farm growing poorer is striking proof of the incompetency of the farmer.—*The Farmer's Home-Weekly*.

One of the things absolutely required of every farmer who desires to have good horses is that he have the facilities and is willing to take the trouble to make them comfortable and give them good care. It makes no difference how good your seed corn is, you are obliged to plow and hoe it, or you'll be disappointed in the result.

CALENDAR.

1892-93.
Fall Term—September 15th to December 23rd.
Winter Term—January 8th to March 31st.
Spring Term—April 3rd to June 14th.
June 14th, Commencement.
1893-94.
Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

The last of the silage is being put into the silos today.

The family of Foreman Baxter rejoice in the birth of a son.

The dry weather necessitates the irrigation of the late vegetables.

The Chemical Department is busy with the sorghum and beet experiments.

The roofs of the Horticultural Laboratory and the Foundry have been painted.

Dr. D. C. Milner and sister, Mrs. Mitchell, of Springfield, Mo., were visitors Tuesday.

At a meeting of the Third-year Class, Thursday, silver-grey and pink were adopted as the class colors.

Prof. Olin will tell "How to Use the New Grammars" at the Teachers' Association, to be held at Ogden, October 22nd.

The Farm Department sent one hundred and twenty-one varieties of wheat to the Oklahoma Agricultural College Thursday.

The Farm Department has enlarged the breeding flock of Shropshires by exchanging two ram lambs for a like number of ewe lambs.

Assistant Marlatt teaches the classes in Entomology during Prof. Popenoe's absence, and the Horticulture classes are cared for by Mr. Sears.

The pastures are suffering from the dry weather, and if rain does not soon fall in considerable quantities it will be necessary to feed the cattle.

The young ladies of the Domestic Department have seized upon such fruits and vegetables as were in sight and converted them into sauces, pickles, and preserves for winter use.

Persons desiring a copy of the "College Symposium" can secure one of the few remaining copies by addressing H. W. Avery, Wakefield, Kansas. Price, \$1.25, postage paid.

The Carpenter Shop has received seventy new planes to complete the equipment for wood work. The simple statement that they are from the Gage Tool Co., of Vineland, N. J., is a guarantee of merit.

Professors Popenoe and Mason attend the annual meeting of the American Horticultural Society in Chicago this week. The Horticultural Department exhibits there about fifty plates of grapes of the choice varieties.

Prof. Georgeson reports the sale of several of the old Poland China and Berkshire sows, and the purchase of three young sows of each breed instead. The Poland Chinas are from Mr. M. F. Talman, of Rossville, Kansas, and the Berkshires from Mr. N. H. Gentry, of Sedalia, Mo.

The first meeting of the Scientific Club for the year was held last evening. Two papers were read—one by Mr. Carleton, on "Some Ornamental Native Plants of the Arid Regions that are Worthy of Cultivation," and one by Dr. Mayo, on "The Kaw Indians." The election of officers was postponed.

Prof. Faillyer visited the comparatively unknown caverns of Newton County, Arkansas, early in the month. He spent eight hours in a partial exploration of the cave, and made several flash-light photographs of the more interesting portions; and also collected as many detached specimens of stalagmites as he could carry away.

The First Division of the Third-year Class opened the year's programme in rhetoricals yesterday afternoon as follows: "A Use for Deserted New England," W. T. Allen; "Depew's Oration on General Sherman," F. W. Ames; "Self

and Opportunity," Lorena E. Clemons; "Our Country: Its Past, Present, and Future," G. G. Boardman; "Education and Civilization," G. L. Christensen; "Give Her a Hoe," Sarah E. Cottrell; "The Revival of Poetry," J. C. Christensen.

Secy. Graham has just received from the Estabrook Steel Pen Manufacturing Company of Camden, N. J., a box of about 1000 sample steel pens of various patterns for use of the classes in book-keeping. The excellent pens made by this company are very widely known and used, and thanks are due the company for this liberal supply of them.

An interesting game of ball—interesting in the number of runs on one side and the lack of runs on the other—was played yesterday by a Fourth-year nine and a nine selected from the College, mostly from the Third-year Class. The result was eighteen to zero in favor of the Fourth-years. The players and their positions follow:—

FOURTH-YEARS.	POSITIONS.	COLLEGE
C. E. Abbott	Catcher	I. Jones
F. R. Smith	Pitcher	F. R. Jolly
W. E. Smith	First Base	C. M. Breese
T. E. Lyon	Second Base	J. J. Johnson
A. Dickey	Third Base	O. A. Otten
M. F. Hulett	Short Stop	W. A. Cavanaugh
W. O. Lyon	Left Field	J. Stingley
F. Hulse	Center Field	T. W. Morse
J. D. Riddell	Right Field	E. L. Frowe

GRADUATES AND STUDENTS.

R. L. Wallis, '92, is teaching near Topeka.

Minnie Reed, '86, has charge of the calisthenics for young ladies.

E. H. Platt, Second-year in 1891-2, is reported as being in business at St. Joseph, Mo.

D. F. Wickman, '92, has a situation as clerk in the Santa Fe Railway offices at Topeka.

Jennie Smith, Second-year in 1888-9, and since a student at Washburn College, is again in classes.

Delpha Hoop, '90, teaches the Bala school instead of the Allingham school, as stated last week.

D. A. Webster, student in 1889-90, is foreman in the *Chronicle* office at Santa Paula, California.

Lillie M. Sparks, student in 1890-1, was married on August 21st to Mr. Tobias, at Ludell, Kansas.

Mildred Frost, Second-year in 1891-2, now employed as retoucher in Dewey's Gallery, was a caller Friday.

V. Emrick, Second-year student last year, is teaching a seven-months' school in the Mount Vernon District.

Maude Parker is again in College after an absence of two years. She assists Prof. Brown with the music classes.

R. U. Waldraven, '89, has entered the ministry of the M. E. Church South, and fills a pastorate near Troy, Kansas.

Jessie Hunter, Second-year in 1891-2, is putting into practice her knowledge of domestic economy in her father's household.

Effie Gilstrap, '92, is the junior member of the firm of Gilstrap & Gilstrap, editors and proprietors of the *Chandler (Oklahoma) News*.

Lieut. J. G. Harbord, '86, Fifth Cavalry, writes that he has just returned to Fort Reno from the "Strip," where he was on duty for several weeks.

J. B. Brown, '87, in the absence of his Chief, handles the Tennessee mother to suit himself, and makes an interesting paper of the *Mother Review*.

Sarah E. Kirby, student in 1888-9, was married recently at her home in Industry to Prof. W. B. Hall, of Hope. Both are teaching in the Hope Schools.

F. M. Linscott, '91, who has for a year past been a practicing veterinarian at Holton, is in town for a few weeks prior to returning to Toronto Veterinary College with Dr. Sisson.

K. C. Davis, '91, as Principal of the High School at Austin, Minn., finds himself very busy with teaching chemistry, physics, and the higher mathematics, and organizing a company of 108 boys for military drill.

Fred Kimball, class of '87 at the College, has received an appointment as route agent in the Railway Mail Service. At present he is employ-

ed in the lumber business at Liberal, Seward County, but he will soon report for duty on the road.—*Republic*.

H. C. Leffingwell, Second-year in 1889-90, now in the grocery business at Salida, Colo., spent a few days at College the first of the week.

We were quite surprised last Friday by a call from an old friend. He came into the office as strangers do daily, asked for the editor, and then waited for us to identify him. The situation was embarrassing for about half a minute. He thought we didn't know him, but gradually the conviction deepened that the portly gentleman before us, weighing 208 pounds, was none else than Amos E. Wilson, class of '78 at the College; in early years a resident of Solomon City, now national bank examiner with headquarters at McPherson. Presently we recognized the voice and many expressions of the countenance, but the additional hundred pounds of avoirdupois put on since college days came nearly concealing the bright student whom we had known so well sixteen years ago. Mr. Wilson was in Manhattan last in the spring of 1880. His errand here at this time is to examine into the condition of our national banks. We had several pleasant chats about old times while he was in the city. Mr. Wilson is married and has three bright little girls. His sister—known to old students as Miss Nena Wilson—is married, and now lives in Topeka. We delight to meet these college friends who occasionally make pilgrimages to the city to renew old acquaintances, and stroll over the hill and through the buildings which suggest so many precious memories of happy school days.—*Republic*.

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, S. C. Mason; Vice-President, J. T. Willard; Secretary, Lottie J. Short; Treasurer, F. A. Marlatt. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, Fred Hulse; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halsead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donovan; Treasurer, John Patten; Critic, M. F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchins, J. D. Riddell, D. S. La-Schelle, J. A. Scheel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Knickerbocker; Vice President, Elsie Crump; Recording Secretary, Florence Corbett; Corresponding Secretary, Lorena Helder; Treasurer, E. E. Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

September 23rd.

The first meeting of the Ionian Society for the year was called to order by Vice-President Mudge. Devotional exercises. After a few appointments to fill vacancies caused by the dropping out of old students, Margaretha Horn was initiated. The following officers were elected: President, Maude Knickerbocker; Vice-President, Elsie Crump; Corresponding Secretary, Florence Corbett; Recording Secretary, Rena Helder; Treasurer, E. E. Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. The programme was opened by a select reading by Blanche Hayes. Lorena Helder then favored us with a vocal solo. Fanny Cress read an essay describing a visit to the "Man in the Moon." The Oracle was presented by Marie Hautenbeck, which had for its motto: "The World was not made in one day." The programme was closed by a vocal solo by Miss Pierce. A number of names were proposed and considerable business transacted before the Society adjourned.

I. R. F.

September 24th.

President Smith called the Hamiltons to order, and C. R. Hutchins led in devotion. After inauguration of officers, E. C. Abbott; responded to a call for inaugural with a few well chosen words, in which he thanked the Society for the honor conferred upon him, and pointed out how each member could best work for the good of all. Mr. Smith, in his valedictory, expressed himself as well satisfied with the work of the Society in the past, and hoped the Society would continue to use the same good judgment shown in the selection of Mr. Abbott. Messrs. Norris, Kerr, and Pope were admitted as members by a vote of the Society. Under the programme of the evening, Mr. Benson's essay, entitled "I R member," was well received. The question, "Is the mind of woman inferior to that of man?" was argued on the affirmative by R. J. Barnett, and on the negative by J. A. Rokes. After carefully considering the points brought forth on each side, the judges decided in favor of the affirmative. C. R. Hutchins entertained the Society with a selection from Carleton's poems called "The Lightning Rod Peddler." W. E. Bryan discussed the railroad system of the present day, and how it might be improved upon. An oration, "Consistency, Thou art a Jewel," was delivered by G. G. Boardman, in which the inconsistencies of the political parties of the present time were clearly shown. J. D. Riddell presented the first copy of

the Recorder. Some of the pieces were "Abbott's Vacation Wish," "Society Members," and "A Freshman's Letter Home." W. E. Smith, assisted by T. E. Lyon and Mr. Norris, closed the programme with music. The names of C. A. Chandler, C. A. Doane, E. Marshall, and Mr. Ridener were proposed for membership. Under the head of extemporaneous speaking, the members listened to several interesting speeches. After Critic's report and assignment of duties, the Society adjourned. I. J.

September 4th.

The Webster Society was called to order by Temporary Chairman Pfuetze promptly at 7:30, and was led in prayer by M. F. Hulett. Minutes of previous meeting were read and approved. Inauguration of officers. Under balloting on candidates, Messrs. Milburn, Eggleston, Creager, and H. N. and A. B. Ginter were elected members of the Society. Under debate, the subject, "Resolved, That the annexation of Cuba to the United States would be beneficial to our Government," was presented on the affirmative by J. M. Williams, who pointed out several of the splendid features of Cuba, and why the United States should control its interests. H. G. Pope presented the negative, speaking of the moral errors that we would make in such a seizure. F. W. Ames further argued that Cuba should become part of our nation, and he was followed by J. V. Patten, who pointed out several of the reasons why such a scheme was impracticable. The decision of the Society was in favor of the affirmative. Declamation, by E. H. Freeman, and select reading, by T. W. Morse, were followed by recess. Under discussion, C. H. Paul gave us quite an interesting talk on the characteristics of Asiatic cholera. We next listened to music furnished by the Smith orchestra. J. W. Evans next talked on the nature and destructiveness of the prairie dog. Several ex-Websters favored the Society with remarks.

E. A. D.

September 23rd.

Once more the Alpha Betas have assembled. The first on the regular programme was music, duet, Misses Parker and Smith. Title, "Whispering Hope." The Society was then led in devotion by Fred Hulse. This was followed by roll call, and then came the installation of the new officers. The President, Mr. J. E. Thackrey, delivered an inaugural address. He mentioned the prosperity of the Society in the past, the condition it was in at present, and the bright prospects for the future; also urging upon each member the responsibility that rested upon him, and desired that he, with them, might do their best to make the Society all it was capable of being. This was followed by an oration by C. C. Smith. His subject was "Stories." It treated of the development, object, and use of them. Then a select reading by Sarah Cottrell. Subject, "Sunday in the Horse Sheds." Next in order was debate. The debaters were Miss Louise Daly and Mr. Chas. Morgan on the affirmative and Fred Hulse and Mr. C. H. Thompson on the negative. Question, "Resolved, That a visit to the Columbian Exposition would be more beneficial than a year in College." The Judges decided two to one in favor of the negative. The next was the Gleaner, presented by Miss Elva Palmer, followed by recess. After recess, music was rendered by Misses Palmer, Parker, and Smith, with Mr. Mercer presiding at the organ. Title, "Sleep and Rest." News report. Extemporaneous speaking was participated in by nearly everyone present. Then some business was transacted, followed by assignment of duties. Report of Critic. Reading of minutes. Congregational singing. Adjournment. F. H.

THREE KINDS OF FARMERS.

There are three kinds of farmers: those who sneer at agricultural papers, those who expect the agricultural paper to think for them, and those who read an agricultural paper for principles which they apply in the exercise of their own sound judgment. For example, a farmer reads in an agricultural paper an article on harrowing corn. It is argued that corn should be harrowed until it is four inches high, that by so doing the weeds may be killed with the least labor, the corn hood in the most effective way, and the surface thoroughly mulched with dry dirt, the best protection against drought. This doctrine is perfectly sound, and yet, if it were followed literally, under all circumstances, the farmer might seriously damage his crop; for example, if his land was foul with old corn stalks, or was rough and badly ploughed, or if his harrow was heavy and straight toothed. If the weeds were three or four inches high he might, even with a good slanting toothed harrow, be only cultivating the weeds instead of killing them, and any harrow that would kill the weeds would then destroy the stand of corn.

The principle of harrowing corn is correct, but the right application of the principle is the thing for the farmer to determine. In other words, no agricultural paper will think for the farmer. If he does not weigh and consider, as well as read, he might just as well not have a paper. So it is with deep and shallow and early and late plowing; with the proper way of making hay and feeding cattle; in fact, with everything on the farm. All that an agricultural paper can do is to collect facts and experience, to enunciate general principles, to apply any of which requires the exercise of judgment. It is about as bad to do the right thing at the wrong time as to do the wrong thing. It is the same way in following the example of other farmers. "Circumstances alter cases." What is good policy this year may be bad next, and no man is wise enough to undertake to tell farmers in detail just how they should do this or that. It is always safe to lay down principles, to give experience and interpret it, to point out the conditions to be secured in order to produce the best crops, but nothing that a paper can say will do away with the necessity of every reader running his own thinker.—*Iowa Homestead.*

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Campbell University at Holton has added four new pianos to its equipments.

Garfield University at Wichita has two hundred students in attendance this term.

Sixteen of the members of the class of '92 of the Lawrence High School have entered the State University this fall.

There are two school districts in Barton County that will not keep school this winter because there are no pupils left to go to school.

L. A. Park, for several years Superintendent of the Schools of Burrell, has entered the Law Department of the State University.

Hon. Geo. W. Winans, State Superintendent of Public Instruction, has been nominated for Representative by the Republicans of Geary County.

Prof. Evans, Principal of the Leavenworth High School, has been dangerously ill for several weeks, but is improving now and hopes to soon be at his post again.

The twenty-fifth annual meeting of the Kansas Academy of Science will be held at Atchison, on Wednesday, Thursday, and Friday, October 12, 13, and 14. A large attendance of the scientific men of the State is expected. The programme will be sent out before the meeting.

Arrangements have been completed to recommence the University Extension work at Kansas City within about two weeks. The managers of the club complain about the meager interest taken by the ladies. In some of the departments scarcely five per cent of the hearers are women.

Prof. William MacDonald, formerly Professor of Music in the University of Kansas, during the last two years has been doing special work in Harvard University. On the nomination of the officers of Harvard, Professor MacDonald was recently elected Professor of Economics in the Worcester Institute of Technology, one of the best technical schools in the world.

The State Teachers' Reading Circle in Kansas, during its first year of existence, has proved a grand success, having now enrolled in its membership several thousand teachers. The reports of county managers show that the plan is a popular one and indicate that the Circle will be largely increased during the coming year. The Reading Circle is under the general control of a State Board of Managers, consisting of five County Superintendents, selected by the County Sections. Each County Superintendent is made manager of the Circle in his county and has supervision of the work in detail so far as his own county is concerned. All teachers in the State, or persons desiring to become teachers, are entitled to membership. No fee will be charged. The only requirement of the members is that under the direction of the County Superintendent they pursue diligently the course of study as outlined by the State Board.

MANURING TREES.

In order to secure a vigorous, thrifty growth with trees, a rich soil is very essential; you can as easily starve trees as you can a crop, and the results will be as unsatisfactory. If the soil is not reasonably rich naturally, it will pay to make it so by the application of fertilizers in some form. Wood ashes make a good fertilizer for trees because they return to the soil all of the elements of plant food needed by the trees for growth. A good plan of applying is to scatter evenly around the trees, and then to work thoroughly into the surface. During the winter is a good time to apply manure to trees of all kinds, and there is usually more time that can be spared to do the work, and a better supply of manure can thus be secured. Broad-cast manure is nearly always the best, the roots of the trees extend out as far in the ground as the tops above, and better results will nearly always be secured. The manure can be applied at any time during the winter, and then, when the condition of the soil will permit, it can be worked in. Well-rotted manure will give the most immediate results, yet it increases the work and costs considerably to rot the manure before applying; so a very good plan is to haul direct from the stables or sheds and apply on the land, scattering direct from the wagon, taking pains, of course, to distribute as evenly as pos-

sible. If left during the winter it will act to some extent as a mulch, and the rain and snow, with the freezing and thawing, will carry the solvable parts into the soil. There is little danger of getting the soil too rich, so that generally it will be safe to apply all that can be spared.—*Ornamental Tree Grower.*

The docking of horses' tails by anglo-maniacs who ape English manners and customs should be made a criminal offence, punishable by imprisonment for not less than one year. Nature provided the horse with a tail to brush off the flies, mosquitoes, and other insects, just as the Creator furnished man with hands to protect himself. A man who will wantonly cut a horse's tail should be compelled to stand on a sugar dock in hot weather with his hands tied behind his back, and he would then know the agony and torture a poor horse suffers with nothing but a stump of a tail to drive off these pests and tormentors.—*American Shipbuilder.*

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THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, OCTOBER 8, 1892.

NUMBER 7

THE INDUSTRIALIST.

PUBLISHED WEEKLY

PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

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Application for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

THE COW-HORN FLY.

BY PROF. E. A. POPENOE.

ECONOMIC entomologists will be interested to know that the imported pest, the cow-horn fly, has reached Kansas in its westward spread, while farmers of the State will be glad to learn the description and habits of the insect, and the best suggestions for its repression.

This insect is a native of Southern Europe, and was first noticed in this country in Pennsylvania in 1886. In the fall of 1887 it was reported from New Jersey; in 1889 it had extended well southward into Virginia; and now it is found in Canada, Florida, Mississippi, Missouri, and Kansas. So far as recorded, Manhattan is the westernmost point yet reached by this fly, and it has been noticed here only since the 19th of September last, when it was observed by Assistant Marlatt on milch cows a mile from the College. Since that date it has been found on various herds in this immediate vicinity, but is apparently yet restricted to a narrow area, herds a few miles away showing no evidence of its presence.

The cow-horn fly is known to science as *Hæmatobia serrata*, and is closely related to the common biting stable fly (*Stomoxys calcitrans*), known everywhere. Like its more familiar relative, it is a blood-sucker, and troubles cattle by its bite. It is called "horn-fly" from its habit of settling in great numbers together on the base of the horns, not, as was once thought, for the purpose of feeding, but simply to rest. According to Prof. Smith, of New Jersey, this habit seems to be undergoing a change, and observation has shown few of the flies in this vicinity upon the horns, but mostly upon the sides of the animal along the flank, or upon the shoulder. The presence of "fly-specks" upon the horns about the base is, however, an indication of the existence of the insect in any locality, and we have found such evidence here wherever the flies have afterward been shown to exist. In the early morning they have been seen to bask in the sun upon the hoof or foot above. When feeding they are most likely to attack the flank or shoulder, or the thin skin at the root of the tail.

The life history of the insect, condensed from various eastern accounts, is briefly as follows: The eggs are laid in fresh cow droppings, and hatch into maggots, or larvae of the ordinary dipterous type. These live in the droppings, feeding on the substance for a few days, but soon transforming, the adults appearing within about two weeks from the depositing of the egg. As the entire transformation occupies so short a time, there is a continual succession of broods from May till November, the species thereafter existing, either as pupa or adult, until May of next year, when it begins breeding again.

The adult resembles the common stable fly, or the more common housefly, in general appearance, but is only about half the size of either. In color it is more like the stable fly: greyish, with indistinct shades of deeper grey. The wings are usually held half spread, and the fly is quite active in avoiding a stroke of the cow's tail, rising and settling again in a moment.

There seems to be no doubt that when the flies are very abundant, the distress caused by their bites is considerable, resulting in such annoyance to the animals that the flow of milk is reduced and fattening retarded. Where equally abundant, however, the common stable fly is apparently more troublesome than its newly imported ally.

In the repression of the insect, two modes are recommended. As the insects develop only in

fresh cow droppings it is desirable to prevent their maturing by spreading out the dung so that it may dry through rapidly, since the larvae can grow only in the moist material. This process would be specially effective in our dry season and atmosphere. Others recommend the covering of the fresh droppings with dry slack lime to destroy the eggs and larvae. In the stable, lime or land plaster may be used with equal service, the latter application making the dung too dry to serve as food for the maggots. The adults or flies may be kept from milch cows by the frequent use of some repellent, as a wash or a spray. For this purpose diluted kerosene emulsion is recommended, and it is said to be effective as long as the odor remains, though it needs to be renewed about twice a week. While acting chiefly as a repellent, this application serves also as a positive insecticide by destroying, at the time of application, every insect that it reaches.

We are greatly interested in the history of this insect in our State, and will thank any of our readers for information as to its appearance and spread, with observations upon its abundance, and the injury it does. For certainty in the determination, specimens of the fly should be sent with the notes, enclosed in a quill or small box to prevent crushing in the mails.

GOOD DIRT ROADS FIRST.

BY SUPT. J. S. C. THOMPSON.

THAT the day of good roads of some kind is coming, and is not far distant, nearly all agree; but as to the material which shall compose them—whether it shall be telford, macadam, gravel, or just plain dirt—there is not the same unanimity of opinion.

It is doubtful if we Kansans, favored as we are by nature in soil and weather conditions, which, in most portions of the State, give fairly good roads at all seasons except during brief intervals in the early spring, feel the need of an improved system of highways as do the residents of the clay and "gumbo" districts so abundant in the East. It is not probable, therefore, that we shall be in any great hurry to vote bonds for the construction of expensive roads; and we are not likely to receive Government or State aid, at least until the needs of less favored localities have been supplied.

But our roads, fair though they be, may be vastly improved at trifling expense by the exercise of a little common sense on the part of the Road Overseer. It is time that the people inform this township autocrat that they expect him to do something; and, further, that that "something" be more than the dumping of scraper loads of dirt where they will do the most harm, and the gathering of his constituents in the wet springtime for the purpose of mutilating a fairly good road. Happily for all concerned, this type of Road Overseer will soon be extinct—for if he doesn't reform he will be overtaken by a fatal disease—popular indignation will hurry him to his political grave, and open the way for a man of ideas.

There is no reason why, with the improved road machines now on the market, really good roads should not be the rule rather than the exception. The new graders are not expensive, and every township should be the owner of one or two. They will do the work of twenty—perhaps more—common scrapers with a small fraction of the effort required to operate the latter. With these machines in use, there can be no heaping of dirt into piles and ridges, but both ditch and grade may be nicely leveled, and a wide road way laid out, over any portion of which a vehicle may be

drawn with perfect comfort to occupants or horses. With proper attention given to drainage, such a road will, by being graded twice a year, and that in the dry seasons, become so well packed—care being taken that no deep ruts are formed—that the water will run off and leave it quite dry in a few hours.

As an aid to this packing, wide tires should be used on all farm wagons. The road properly graded, the constant rolling by wide tires would perhaps do more toward keeping it in good condition than do occasional repairs now when narrow tires are used. The adoption of wide tires does not necessitate the purchase of new wheels; for an inventive genius has constructed an adjustable tire which may easily be fitted to any wheel. These tires will soon be on the market, and the demand for them will, it is thought, be such as to tax the capacity of the manufacturing concerns to the utmost for a few months.

This demand for wide tires may be taken as an indication of the spirit of improvement which is soon to work a revolution in our methods of road construction.

THE CARE OF FARMING TOOLS.

The loss resulting annually on farms from carelessness with farm implements is enormous. It may almost be said that more farm implements are destroyed from the want of being properly cared for than are worn out by actual use. Mr. George T. Pettit, in the *Practical Farmer*, gives some excellent suggestions on the subject:—

"The lack of regular tool-houses does not deter the more progressive of our farmers from taking very good care of their farming tools. I recently saw a binder shed which was cheap and effective, and one that could be profitably imitated by many farmers, both east and west, who are now paying a high rate of interest to Rust, Rot, & Co. The shed was built in 1887 to shelter a harvester bought in that year. The first thing done was to back the machine up against the gable end of one of those long western cattle sheds, the drive wheel resting on a piece of plank. The seat, tongue, reel, and all those parts that extended out beyond the general outline of the machine were detached, and the machine, being of a style in which the platform could be folded up at an angle of about forty-five degrees, was thus made quite compact. Two posts were then set 6 feet from the end of the cattle shed and 11 feet apart, so that the machine could be pulled out away from the shed by passing between these posts. The post at the right hand front corner of the machine was 5 feet high, while the one at the grain wheel end was 7 feet. This gave the roof (made of six boards 1 by 12 inches by 12 feet) a pitch of two feet, and when carefully battened was found to turn water almost perfectly, and to be high enough to let the machine in or out when lowered until it rested in the hangers. The ends of the shed were boarded up permanently. After putting the tongue and other detached parts inside, the front side was closed by setting up a temporary post midway between those already planted at the corners, to assist in supporting the roof and side. To these three posts, boards were then nailed horizontally, allowing the head of each nail to project sufficiently to be grasped and withdrawn by a claw hammer, when the machine should be wanted for use.

"The young man who erected this structure informed me the total cash outlay for lumber and nails was just \$5, and it took him about a day to do the "carpenter" work. Another similar shed was erected by the side of a building in this vicinity last fall, but as this machine does not fold up, the shed was made 14 feet long, and was also made 8 feet wide, so that the harvester can be stored without removing any of the parts except the tongue and reel. This little hut snugly shelters not only the binder, but also a harrow, a plow, and two two-horse cultivators. These latter are of course taken apart and stored to good advantage on and around the platform of the harvester. A neighbor has an excellent cow stable extending along one side of a large barn, and over this quite a roomy loft, formed by the angle of the roof. Here he stores his plows, harrows, corn planter, drill, and many other tools by running them into the stable through the wide doors and hoisting

them to the loft with ropes and pulleys. Another neighbor bought a new farm wagon last fall. And right here I want to say that one of the worst sins of omission that we western farmers will have to account for, as in any way connected with our farm machinery, is that of utter neglect to provide any kind of shelter for the farm wagon. The "all steel" binder, the iron mower, the metal harrow, and the plow or cultivator, in the construction of which scarcely a particle of wood enters, must go "under cover," while on a majority of farms the wagon, which is constructed almost wholly of wood and is therefore much more susceptible to injury by exposure to the elements, is allowed to stand out and "take it" year in and year out. But to return to the man who bought the wagon. I was husking corn in a field nearby; I saw him pull it up alongside of his poultry house. Then some posts were set, a few boards nailed on, and in a short time, at an expense of a very few dollars, the wagon was covered with a shed, which will, if properly used, keep the paint good and bright, and the bed free from snow and ice rot for many years."

POWER BY GEARED WINDMILLS.

We venture the statement that within five years the geared windmill will take the place of the pumping mill; that a farmer will think no more of putting up a mill for pumping alone than he would of purchasing a self-rake reaper at the present time. There seems to be an impression that a windmill is to stand for years and then blow away. It is possible we may get a gale that will blow the wheel off the tower; in that case the damage would be from \$25 to \$50. But shafting and machinery is all in the barn, and nothing will affect them unless the barn goes with them. Your team is as liable to run away, for that matter, as a wheel to fly off the tower. It answers many purposes as well as a steam engine, and costs less to run. But you may say, "How many days there are in the year when you can do nothing." Yes, there are a good many; but then it is as good as an engine without steam. How often have you been to a machine shop with a little repairing and met with the answer, "We will do it the first time we have steam up." Well, it is just so with the windmill. You must work when the wind is on. There is no trouble to do all the work described and plenty besides. You will have no bother in grinding all you want yourself and for your neighbors with a 14-foot mill. Then it has a tendency to keep the boys on the farm, as it combines work with pleasure.

A 16-foot wooden wheel put on a building or tower with shafting, pulleys, etc., will cost about \$250; iron feed girder \$30, corn sheller \$25, feed cutter \$40, buzz saw \$35, belting \$5; total \$385. A 12-foot wheel will cost, with the same outfit, \$125 less, or \$260, and is fully equal to the 16-foot wooden wheel, and in a great many points preferable. One use more to which the geared mill may be put and we will close this article and series. A gentleman in Cleveland, Ohio, uses a geared mill to run an electric dynamo, storing the electricity thus obtained in storage batteries from which it is drawn for lighting and heating his large dwelling. This is but the beginning of what in a few years will be in general use—two of nature's greatest agents—wind and electricity—used to heat and light our homes. With what has been accomplished, what may we not expect when man comes to fully understand and control nature in all its forms?—*Ohio Farmer*.

HOW TO KEEP WAGON TIRES TIGHT.

Wagon tires get loose in very dry, hot weather from two causes, the chief of which is the shrinkage of the wood of the felloes. It is a poor plan to wet the felloes and thus swell the wood, for it will soon dry out and leave the tire as loose as ever. If, however, the wood be boiled in linseed oil, it will be swelled and the tires tightened as permanently as though cut or upset by a blacksmith. A writer in the *Ohio Farmer* gives the following instructions for doing this: "Make a trough a little wider and a little deeper than the felloes of the wheel. Heat linseed oil to the boiling point, and at this temperature pour in the trough. Have everything so arranged that you can immediately turn the wheel slowly through this boiling oil. Two or three revolutions are sufficient. Then take the next wheel. One heating is sufficient for four wheels, if the work is rapidly done. Better, however, add a little boiling oil after the second wheel is soaked. Have sufficient oil in the trough

to cover the felloes. After the wheels are all attended to the oil may be poured into a vessel and kept till the next occasion. The skeptic of course says it will do no good; the oil cannot contract the tire. It is immaterial whether the oil contracts the tire or expands the wood. We do know that it makes a perfect job. On one occasion it so firmly tightened the tire that the spokes began to bend. This process of tightening tires is far preferable to that of the blacksmith. The wheel retains its original shape better. If wagon wheels are so treated once a year they are able to endure the hot dry season. The whole cost will be a few cents' worth of oil to the wheel and a few minutes' work."

WHAT THE COLLEGE DOES FOR THE STUDENT.

The spirit and atmosphere of the college have a positive influence, elevating, inspiring, and wisely guiding. The traditions of culture are maintained, but there is also new culture—the latest interpretation of an older life, and the fresh unfoldings of a living science. The student is in touch with the life of the time, but he need not be distracted by it, or so drawn into its swift currents as to lose the poise and calm of seclusion. If his college happens to be in the city, he may secure the many benefits of such a situation without its many evils. If there is among his comrades an undue interest in athletic exercises, he may avoid the excess. The quiet hour is at his command, and if he fails of its large uses the fault is his own. And he has failed of them if he goes from the college into the world having gained only that sharpness of faculties which will enable him to distance his competitors in the race for wealth and political favor. Faculties must be sharpened for active use, but it is more important that they should be enlarged, that there should be an expansion of view. There must be adequate equipment for conflict; but that is a narrow culture which does not yield a comprehension of the real meanings, the living uses, of the conflict itself, disclosing the whole arena in its relations to an integral manhood. The deepest insight is then possible, one which transcends all culture and all formal science, seeing that these are but the superstructures, ever changing in form from age to age of human progress, and in every age built anew above a living foundation, which is in the heart of man. By this vision, youth finds itself, and its power, its enthusiasm, its faith, are re-enforced for the transformation of the life into which they flow.—*Harper's Magazine*.

FARMING A SAFE PURSUIT.

G. W. Brown, Jacksonville Business College, Jacksonville, Illinois, writes to *Orange Judd Farmer*: "A personal experience with over 10,000 young people, largely from the farm, and covering a period of nearly thirty years, leads me to conclude that farmers' boys and girls are not likely to become farmers and farmers' wives, especially if they become educated."

To which the editor replies: "This has been too much said in the past, because farmers themselves have not magnified their own calling. Their home talk and actions tend to make their children feel almost any other calling is on a higher scale, more honorable than that of farming. There is a most detestable class of the so-called "Farm Journals" which are constantly telling falsely that the farmers are the most oppressed class of all people, the victims of trusts, corporations, and what not. They do this to better parade themselves as the sole defenders of said farmers, and thus get their patronage and dollars. This is their chief "stock in trade." But a better day is dawning. Science is being largely applied to agriculture. Improved implements and facilities are multiplying with wonderful rapidity. The lightnings of heaven and the science of meteorology are becoming of more importance to farmers than even to shippers and shipping interests; everything is tending to elevate this pursuit in importance and in dignity, and its certainty of success as a pursuit is ten-fold greater today than any other calling."

With most of us the experience after our school days is of more importance in shaping our lives than any other experience. This is not a suggestion that school should be neglected or avoided; for the writer has great faith in schools, but it is a suggestion that there should be more thought and more work given to the education of men and women who can no longer go to school.—*Longmont (Col.) Times*.

CALENDAR.

1892-93.
Fall Term—September 15th to December 23rd.
Winter Term—January 8th to March 31st.
Spring Term—April 3rd to June 14th.
June 14th, Commencement.
1893-94.
Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold *at par* or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Friday, October 21—Columbus Day—will be a holiday at the College.

Prof. Waiters leads the choir at the new German Presbyterian Church.

Secy. and Mrs. Graham attended the Sisson-Oldham wedding at Keats on Wednesday.

Mr. and Mrs. J. B. Fritz, of Newton, visit with the family of Supt. Thompson this week.

Foreman Shelton, of the Farm Department, leaves next week on a business trip to New England.

Prof. Brown spent Wednesday in Kansas City in attendance upon the Oberlin College Alumni Reunion.

The Herbarium is richer by six hundred specimens from Greeley County, collected by Minnie Reed, '86.

The first union meeting of the Y. M. C. A. and Y. W. C. A. for this year was held at the College yesterday evening, led by President Fairchild.

Rev. A. M. Marlatt, of Columbus, Ind., visited the College several times this week with his nephew, our Assistant Entomologist.

Pres. Fairchild was away on Wednesday, in attendance upon the annual meeting of Oberlin College Alumni in the Midland Association at Kansas City, of which he is President.

At a meeting of the Fourth-year Class Monday the following officers were elected: President, E. C. Abbott; Vice President, Maude Knickerbocker; Secretary, Onie Hulett; Treasurer, G. L. Melton; Marshal, M. W. McCrea.

Ex-President Fairchild, of Oberlin, Ohio, visited his brother, our President, for a day this week. Although seventy-five years of age, he is in excellent health, and came to Kansas as representative of Oberlin College before the meeting of the Midland Association of Oberlin Alumni and students at Kansas City.

In a ball game yesterday afternoon between a College nine and the Manhattan nine, the score stood six to two in favor of the former at the close of the third inning, at which time the game was called. E. C. Abbott, catcher for the College boys, had his fore finger on the right hand dislocated at the first joint by a swift ball.

The Chemical Department, in analyzing sorghum of the Undendebule variety, found a large number of stalks that yielded from 19 to 20 per cent of sugar, while two stalks gave 20.39 and 20.49 per cent respectively. When it is remembered that 10 per cent of sugar is considered a fair average of the sorghum grown in the State, this yield is surprisingly large, and serves to show, in part, what may be accomplished by judicious seed selection and thorough tillage.

Mrs. Kedzie occupied the public hour yesterday afternoon in a lecture descriptive of the wonderful scenery of California's greatest pleasure resort, Yosemite Valley. Having a short time ago visited the Valley and made a critical study of the beauties there exhibited, she was well supplied with entertaining and interesting facts which pleased her hearers. Magic lantern views of the most interesting parts of the Valley added to the description.

The following is the list of Cadet Officers for this term: Captains, J. E. Thackrey, C. E. Abbott; First Lieutenants, C. F. Pfuetze, G. W. Smith; Second Lieutenants, W. E. Smith, F. R. Smith; First Sergeants, W. H. Steuart, H. L. Pellet; Sergeants, J. M. Williams, J. U. Secrest, F. R. Jolly, J. A. Scheele, E. L. Frowe, J. V. Patten, A. F. Niemoller; Corporals, I. Jones, J. E. Taylor, C. H. Paul, I. A. Robertson, D. Timbers, R. J. Barnett, J. E. Mercer, S. A. McDowell; Trumpeters, R. B. Kerr, L. W. Hayes.

GRADUATES AND STUDENTS.

Lillian St. John, '91, was a visitor yesterday. R. S. Reed, '92, is teaching at Clements, Chase County.

C. E. Freeman, '89, has been appointed instructor of the class in athletics.

Alice Horton, First-year in 1891-92, is attending the Boston Conservatory of Music.

E. J. Abell and W. J. Yeoman take their places in the Fourth-year Class this week.

John H. Mudge, student in 1887-8, is station agent for the Santa Fe at Silver City, New Mexico.

Susie Hall, Fourth-year, and Myrtle Harner, Second-year, attended the Sisson-Oldham wedding.

Fred Collett, student last year, writes of success in blacksmithing at his home in Elk, Howard County.

F. R. Smith and F. Hulse, Fourth-years, and W. H. Steuart, Third-year, assist Prof. Lantz with the surveying classes.

W. W. Robison, Second year in 1891-2, writes from Rhinecliff, N. Y., where he is Overseer of the dairy department on Vice-President Morton's farm.

Harry C. Rushmore, class of '79 at the College, has sold out his hardware business in Fort Payne, Ala., and is seeking a location in Kansas.—*Manhattan Republic*.

J. R. McNinch, student in 1887-8, was visiting College friends this week. He leaves next week for New York to join a party of missionaries on their way to Africa.

S. W. Williston, '72, Professor of Paleontology at the State University, is on the program of the free lecture course at Topeka, under the management of the Y. M. C. A.

G. V. Johnson, '91, having disposed of his interest in the Chandler (Ok.) *News*, visited the College two days this week. He will engage soon in the printing business elsewhere.

Nellie McDonald, '91, Elizabeth Edwards, '92, and Ada Rice, Second-year in 1890-1, are on the programme of the Riley County Teachers' Association meeting at Ogdensburg, October 22nd.

Kate Oldham, '92, and Septemis Sisson, student in 1886-7, were married October 5th, at the residence of the bride's parents, near Keats. The happy couple have gone to Toronto, which will be their home. Dr. Sisson is an instructor in the Veterinary College there.

K. C. Davis, '91, writes from Austin, Minn., inquiring for copies of blue prints used in our first and second term wood-work classes, with the expectation of using them in the manual training classes which he expects to organize in the High School of which he is Principal.

THE WEATHER FOR SEPTEMBER.

BY PROF. E. R. NICHOLS.

September, 1892, was extremely dry, quite warm, and nearly cloudless.

Temperature.—The mean temperature was 69.66°, which is 2.25° above normal. There have been eleven warmer and twenty-three cooler Septembers, the extremes being 74.61°, in 1865, and 60.28°, in 1868. The highest temperature was 97°, on the 23rd; the lowest, 37°, on the 14th—a monthly range of 60°. The warmest days were the 23rd and 24th, the mean being 82.25°; the coolest, the 13th, the mean being 55°. The greatest range for one day was 47°, on the 14th; the least, 16°, on the 10th. The mean of the observations at 7 A. M. was 60.43°; at 2 P. M., 83.27°; at 9 P. M., 67.5°. The mean of the maximum thermometer was 85.7°; of the minimum, 56.37°, the mean of these two being 71.03°. The mean temperature for the first decade was 69.4°; for the second, 64.67°, for the third, 74.95°.

Barometer.—The mean barometer for the month was 28.887 inches, which is .07 inch above the average for twenty years. The highest was 29.116 inches, at 7 A. M. on the 5th; the lowest, 28.576, at 2 P. M. on the 21—a monthly range of .54 inch.

Rainfall.—The total rainfall was .362 inch, which is the least in thirty-five years. Rain fell in

measurable quantities on the 3rd, 9th, and 10th.

Cloudiness.—There were eighteen days entirely cloudless; four, $\frac{1}{6}$ cloudy; four, $\frac{1}{3}$ cloudy; two, $\frac{1}{2}$ cloudy; and two, $\frac{2}{3}$ cloudy. The per cent of cloudiness for the month was sixteen; for the first ten days, thirty-two; for the second, five; for the third, ten.

Wind.—Was from the south thirty-five times; north, ten times; northeast, seven times; southwest, seven times; west, six times; east, five times; south-east, three times; northwest, three times; and a calm fourteen times, at the hours of observation. The total run of wind for the month was 7032 miles, which gives a mean daily velocity of 234.4 miles, and a mean hourly velocity of 9.77 miles. The highest daily velocity was 560 miles, on the 24th; the lowest, 56 miles, on the 12th. The highest hourly velocity was 32 miles, between 11 A. M. and 12 M. on the 24th.

Below will be found a comparison with the preceding Septembers:

September.	Number of rains.	Rain in inches.	Prevailing Wind.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	1	1.10	...	69.63	98	50	...	...	...
1859	6	1.82	S	65.86	96	36	...	...	...
1860	2	1.35	NW	72.44	100	43	...	...	...
1861	12	8.06	S	68.24	95	41	...	...	...
1862	6	4.15	S	71.70	97	51	...	...	...
1863	4	.73	S	72.56	95	39	...	...	...
1864	5	2.00	SW	73.58	104	42	...	...	...
1865	4	1.23	...	74.21	90	49	...	...	...
1866	10	6.23	S	61.88	90	40	...	...	...
1867	6	3.50	S	69.12	92	49	...	...	...
1868	6	5.72	S	60.28	87	34	...	...	...
1869	5	1.83	SW	61.26	83	41	28.86	29.25	28.50
1870	9	4.51	NW	67.29	92	52	...	...	...
1871	3	1.92	NE	66.49	91	39	...	...	...
1872	8	5.70	S	65.01	96	37	...	...	...
1873	7	1.85	SW	65.97	94	38	...	...	...
1874	4	4.53	SW	65.16	98	39	28.74	29.00	28.42
1875	3	2.85	SW	65.88	97	36	28.88	29.18	28.64
1876	6	3.11	SW	64.99	93	25	28.81	29.10	28.48
1877	2	1.52	SW	70.50	93	58	28.76	29.08	28.53
1878	5	3.22	S	67.13	93	37	28.78	29.14	28.28
1879	4	4.30	S	66.49	92	44	28.74	29.02	28.40
1880	7	2.52	SW	64.96	84	40	28.68	28.95	28.36
1881	4	4.92	SW	72.12	101	36	28.56	28.80	28.19
1882	2	1.20	SW	70.30	102	46	28.70	28.96	28.40
1883	2	1.26	E	63.10	94	43	28.72	28.98	28.50
1884	3	3.33	SW	72.65	93	48	28.52	28.82	28.17
1885	3	4.38	NE	66.70	96	42	28.68	28.98	28.23
1886	5	1.14	SW	71.71	101	40	28.03	29.24	28.48
1887	8	6.88	N	66.97	94	38	29.06	29.35	28.75
1888	3	2.86	SW	64.69	96	34	29.04	29.26	28.70
1889	4	1.92	S	63.19	101	30	29.06	29.39	28.78
1890	6	3.24	S	63.04	95	30	28.95	29.32	28.56
1891	3	1.46	SW	69.94	97	31	29.02	29.19	28.76
1892	3	.38	S	69.66	97	37	28.89	29.12	28.58
Means	52	2.98	SW	67.35	95	39.7	28.82	29.10	28.49

WIND RECORD.

September.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
1889	5206	179.5	816	73	7.5	27
1890	5907					

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, S. C. Mason; Vice-President, J. T. Willard; Secretary, Lottie J. Short; Treasurer, F. A. Marlatt. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, Fred Hulse; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halstead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice-President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donaven; Treasurer, John Patten; Critic, M. F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell, D. S. LaSalle, J. A. Scheel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Knickerbocker; Vice-President, Elsie Crump; Recording Secretary, Florence Corbett; Corresponding Secretary, Lorena Helder; Treasurer, Ellen Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

September 30th.

The Ionian Society was called to order by Vice-President Mudge. After singing, devotion, and roll call, the names of Misses Nelson, Hoyt, Norton, and Palmer were proposed and Misses Nelson and Hoyt initiated. The new officers were then installed. The inaugural was heartily applauded. The program was to have been opened with a reading by Miss Adams, but she not being present, Miss McDowell favored us with a declamation. This was followed by the Oracle, Miss Hall, editor. The paper showed an unusual number of sensible pieces and a lack of light literature. The next on the program was a vocal solo by Miss Lyman. She was accompanied on the organ by Miss Crump. The debate was postponed one week, and the discussion postponed the previous week, was opened by Miss Laura Day, on the subject of sewing. Quite a number took part in the discussion. A vocal duet by Misses Newell and Pierce was followed by an instrumental solo by Miss Nelson. F. R. C.

September 30th.

The Alpha Beta Society was called to order by President J. E. Thackrey. Instrumental music by Mr. Trader. Mr. Mercer presiding at the organ. Led in devotion by H. R. Miller. Roll call showed quite a number present. Next was a declamation by A. E. Ridenour, subject, "Germs of the Beautiful." This was followed by an essay by Miss Ellen Halstead entitled "Be Confident." Next was the debate. The judges were Misses Smith and Parker, and Mr. Harling. Question, "Resolved, that Pres. Harrison is justified in his action in regard to the twenty-days quarantine of all cholera infested vessels." The speakers on the affirmative were Messrs. Phipps and Miller, negative Messrs. Smith and Limbocker. The judges decided unanimously in favor of the affirmative. After the debate, an excellent Gleaner was read. This was followed by recess, at which time the chiefs of the Gleaner divisions were elected. The Society was called to order, and instrumental music was rendered by Messrs. Buck and Ridenour. This was followed by miscellaneous business. Assignment of duties. Report of Critic. Reading of minutes. Music. Adjournment. F. H.

October 1st.

The Webster Society was called to order by President Dickens. After roll call, E. A. Eggleston led the Society in prayer. S. H. Creager was initiated. In debate, Hon. John Davis's bankrupt mortgage bill was argued pro and con as regards the benefit it would be to the people of Kansas. B. F. Royer showed the effects of class legislation otherwise and how the Kansas farmer would be greatly benefited by such a law. C. A. Kimball argued against several sections of the bill showing them to be impractical for benefiting the bankrupt farmer. Mr. Webster responded on the affirmative side, followed by Mr. Cutler, who wished to know why the bill should not be made to apply to mortgage contracts after the passage of the bill. Mr. Cutler further spoke encouragingly of the financial condition of our country. The Society rendered its decision in favor of the negative. Mr. Shoup next delivered a declamation on some of the workings of the improved modern mosquito. Essay next read by E. A. Donaven. Messrs. Smith and Mercer next favored the Society with music after which we had ten minutes recess. Mr. Dean gave a very interesting select reading, judging from the actions of several of the members. An excellent number of the Reporter was presented by John Stingley. Smith orchestra furnished some excellent music. Under unfinished business, the program for special session was adopted. Mr. Hulett's amendments of constitution were passed. Mr. Hayes was found guilty of misdemeanor for non performance of duty and fined by vote of Society. E. A. D.

October 1st.

Hamiltons called to order by Pres. Abbott. Prayer by R. M. Laundy. Messrs. Marshall, Chandler, and Ridenour were elected to membership, and Messrs. Chandler and Ridenour were initiated. Under programme of the evening, D. S. LaShelle's declamation, "No Excellence without Labor," showed careful preparation. J. A. Scheel's essay, "Restriction of Foreign Immigration," showed the evils of unrestricted immigration, and concluded with the thought that the United States was no longer an asylum for all classes. "Mighty Power in Local Association," was the title of a declamation delivered by J. M. Calhoun. In debate on the question, "Is man a creature of circumstance?" E. C. Abbott said, a creature of circumstance is one who is affected by his surroundings. It is impossible for one to tell what he can accomplish unless urged on by circumstances. The circumstances that surrounded the people of the South caused them to favor slavery. General Grant was a man of circumstances. Had he followed his own will, he would never have entered West Point. The circumstance that selects a boarding place for a new student has an influence on his after

life in college. F. R. Smith, on the negative, said if man is a created being he is no creature of circumstances. The discovery of America was the work of a man fighting against circumstances. The maneuvers of Washington were the works of a man fighting against circumstances. The circumstances which surround a student at our College are such as would make a first-class farmer, yet a very small per cent of our graduates follow agriculture as a calling. A. L. Frowe, in continuing the debate on the affirmative, said if it were not for the circumstances which surrounded men who have achieved greatness, they would never have been known as great. C. D. Leslie, in favor of the negative, said that the will power exhibited by man showed that he was able to control circumstances. E. C. Abbott, in his closing speech, showed that the saloons in Kansas were done away with, that circumstances might be such as would favor temperance. F. R. Smith, in summing up the argument, brought forth many arguments to prove his side of the question. The Judges, Rice, Pelett, and Larrick, decided in favor of affirmative. The Smith orchestra entertained the Society with first-class music. The news of the week was presented by B. M. Brown. C. Snyder gave a description of a combined harvester and threshing machine, and the amount of work one of these machines can do in a day. Under head of extemporaneous speaking, A. D. Rice addressed the Society, after which several members talked on the subject of strikes, and how they benefit the laboring class. After Critic's report and assignment of duties, the Society adjourned. I. J.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Washburn College at Topeka has added five new instructors to its Faculty.

The schools of Fostoria have made arrangements for a course of evening lectures.

President Mc Vicar of Washburn College clings to the old-fashioned custom of writing with a quill pen.

The pupils of the Mound City schools have started a school library by donating all the books they could spare.

Prof. Tillie Schmitz, of the Dickinson County High School, will enter the Cincinnati Conservatory of Music this fall.

The art courses of the State University have been extended so as to cover four years, and includes the study of English, German, and Italian. The Music Department intends to publish a monthly journal, devoted to music.

There is a growing sentiment among the University students at Lawrence against the domination of college fraternities. A meeting was held last week to make provision for a college paper which shall be strictly independent of university politics.—*Topeka Capital*.

Perhaps the most valuable result of all education is the ability to make yourself do the thing you have to do, when it ought to be done, whether you like it or not; it is the first lesson that ought to be learned, and however early a man's training begins, it is probably the last lesson that he learns thoroughly.—*Huxley*.

There is such a thing as busy idleness—an eager restlessness which accomplishes nothing. Better is a leisurely activity—a methodical use of the intervals which comes in every busy life. Many a choice bit of literary work has been wrought out in the fragment of time which some men would spend in looking out of the window. Learn to economize time.—*Salina Tidings*.

The educational institutions of Kansas, the great State schools, the State University, the State Normal school, the Agricultural College, in every one of which co-education is a gloriously demonstrated success, are now beginning their terms with unprecedented numbers. They began right by recognizing the equality of intellect in sex, without divisions or "annexes," admitting all students to equality of rank, privilege, and instruction, and the voice of protest, never very strong, has been completely hushed.—*Chautauqua Herald*.

The census bulletin just issued on the statistics of education shows the following figures for Kansas: There are in the State 8,811 school houses. There are reported 5,500 pupils in Catholic and 3,000 in Lutheran schools. In private schools, there are 324 male teachers and 201 female teachers and 11,382 pupils. In the parochial schools, there are 106 male teachers, 137 female teachers, and 3,108 pupils. Population of State, 1880, 996,096; enrolled in public schools, 1880, 246,128; population in 1890, 1,427,096; enrolled in public schools, 1890, 399,322; gain of population, 43.27 per cent; gain of enrollment in public schools, 62.40 per cent. The total number of teachers in the public schools is 12,260: males, 4,890; females, 7,370.

Good books, good papers, good magazines, and good neighbors and associates have a wonderful influence to make men and women wiser and better. Brothers and sisters in the Grange, you can be educators—teachers in the noblest sense. How? you may ask. A good way is to begin with yourself today, by reading a good book and by thinking pure thoughts. Then plan to help some one else to do the same tomorrow. This will make you better and wiser; and if you become better and wiser, the average of goodness and wisdom in your community will be higher. Your influence will give an upward thrust to the social mass. Others, following you or moving abreast or ahead of you, will help in the uplifting work; and soon it will become apparent to even ordinary observers that your neighborhood has changed for the better. The influence, once set in motion, will not stop, but will go on and appear in other places as a constant force in the world's progress.—*Longmont (Col.) Times*.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc., Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

VARNEY'S BOOKSTORE.—Popular Headquarters for College Text-Books and Supplies. Second-Hand Books often as good as new. Call when down town, Always glad to see you.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler." Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, Jewelry, and Gold Spectacles, also Musical Instruments. '75.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silver-ware, Spectacles, Clocks, Fountain Pens, Gold, Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

D. R. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

D. EWEY, the photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue.

BOOTS AND SHOES.

R. ELIABLE Boots, Shoes, and Rubbers, direct from the leading eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

LESL E H. SMITH.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special Sattlement will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

S. HULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

SHAVING PARLOR.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

GENERAL MERCHANDISE

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THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, OCTOBER 15, 1892.

NUMBER 8

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE Historical Society

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.
Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.
All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.
The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.
Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.
Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.
General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.
Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

TEXAS FEVER.

BY PROF. N. S. MAYO.

THIS disease is well known in the cattle region of the southwest under a variety of synonyms, viz., "Southern cattle fever," "Spanish fever," "splenic fever," "cattle plague," etc. Owing to the rigid quarantine maintained against southern cattle by the various States, it is not so common as formerly, and the losses from this peculiar and fatal disease are comparatively small.

An account of an outbreak which occurred during the summer in Lyon and Chase Counties will illustrate some of the peculiarities of this disease. About May 1st a herd of some 800 cattle was said to have been shipped from Pecos City, Tex., to Hartford, Lyon County, and driven some thirty-five miles across the country into the edge of Chase County. Some of the Texas cattle were thin, and stragglers were left along the way. About July 15th the native cattle along the trail made by the Texans began dying, and up to the present time between 900 and 1000 native cattle have died from Texas fever, the herd of Texans which caused the disease remaining in their usual state of good health.

The general symptoms presented by an animal suffering from Texas fever are as follows: A very high fever, the temperature often going from 101° F. (normal) to 109° F.; difficult locomotion; the head and ears drooping; the intestines are somewhat intoled; the liver inflamed and enlarged, the "gall bladder" being filled with a thick black or granular bile. The spleen is inflamed and enlarged to two or three times its natural size. The heart and kidneys are also inflamed, the urine being of a blood red, or darker, color. A few animals recover, but most cases are fatal. Medicinal treatment seems to have but little effect. No other animals than cattle contract the disease. Some of the peculiarities of the disease are as follows: The southern cattle which give the disease are to all appearance in perfect health, and remain so, but on the ground over which they pass they seem to sow the "germs" of the disease, so that if native cattle pass over the same ground later they contract the disease.

A wire fence will usually protect a herd of cattle from the disease when a herd of southern cattle are on the opposite side. Southern cattle raised on infected ground do not take the disease, at least not in a severe form. Northern cattle shipped into the infected region suffer from a violent attack of the disease, usually fatal. A sharp freeze kills the virus of the disease, and during the winter southern cattle can be driven or shipped northward with no danger to northern cattle. In some respects this disease resembles the yellow fever of mankind.

This disease, while it may not be caused by a "germ," is caused by something closely related to it. Some authorities say it is caused by a minute animal parasite (protozoan) within the red blood corpuscles, which destroy the corpuscles, and thus produce the disease. It is believed by these investigators that the disease is communicated to northern cattle by southern cattle ticks which, dropping off the southern cattle, with whose blood they are filled, get upon the northern cattle and convey the parasite to them and cause the disease. Other investigators claim it is produced by a true bacterium, or "germ." The reason why southern cattle do not suffer from the disease is probably due to the fact that they acquire the fever in a mild form either before birth, or afterward, and are thus protected from future attacks. In the outbreak which occurred in Lyon County this

summer, almost every native that contracted the disease harbored the southern cattle tick. A small foetal calf taken from a sick cow, upon which a post mortem was held, also exhibited marked lesions of Texas fever, points which go toward proving the tick theory and the acquiring of immunity before birth. Microscopic examination of diseased tissues and culture experiments failed to reveal any disease germ.

In the present state of our knowledge, and while doctors are disagreeing as to the cause and method of transmission of the disease, the loss of northern cattle from this disease can only be prevented by a just quarantine law, rigidly enforced.

INITIAL AND REMAINING VELOCITY.

BY PROF. EDWIN B. BOLTON,

[Captain 23rd Infantry, U. S. A.]

IN ballistics, what are termed "initial velocity" and "remaining velocity" are two very important elements of consideration, as on them both depends the distance a rifle "carries," or "holds up," when fired. The theory of the solution of these two problems has long been known to scientists; but the practical means of obtaining the theoretical conditions is the difficulty that presents itself in the way of manufacturing a thoroughly satisfactory gun.

If the barrel of a rifle be placed in a horizontal position on level ground, and a bullet projected from it with a speed of 1400 feet per second, we know that the bullet will fall on the ground at a greater distance from the muzzle than it would had its speed been only 700 feet per second. Experience teaches, also, that if a leaden bullet be projected with a velocity of 1400 feet per second as it leaves the muzzle, it will go farther than would a bullet made of pith, having exactly the same size, form, and velocity. The speed with which a bullet is moving at the instant it leaves the muzzle of a gun is called its "muzzle," or "initial velocity;" and the speed with which it is moving at any subsequent point in the path of its flight, is called its "remaining velocity." Then it is evident that if two bullets having exactly the same size, form, weight, etc., but different initial velocities, are fired from a rifle in a horizontal position, the one that has the greatest velocity will go the farthest before striking the ground. It is evident, also, that if two bullets of exactly the same size, form, etc., but of different weights, are fired from a rifle with equal initial velocities, the heavier bullet will go the furthest. It is evident, too, that two bullets of the same size and form, but differing inversely in weights and initial velocities, may fall to the ground at the same distance, or at different distances from the muzzle, according to their time of flight and the comparative difference in their respective muzzle velocities. It follows, then, that it is possible to have a great initial velocity, and not go so far as one of lesser initial velocity, but of greater weight. This fact would seem to indicate that a light bullet with greater initial velocity decreases its speed at each subsequent instant in the course of its flight in a greater ratio than does a heavier bullet with lesser initial velocity. This indication is correct, and the difference of these ratios may be taken as the measure of remaining velocity.

Having the theory of initial and remaining velocity settled, the next thing to be considered is the exact relation that initial velocity should bear to the weight of a bullet, in order to obtain the best effect in firing. This relation seems to have been definitely decided upon by a board of ordnance officers, who recommended that the new military rifle, recently adopted for the use of

our Army, should have a calibre thirty (.30 in.), carrying a bullet weighing 220 grains, and having a muzzle velocity of 2000 feet per second.

The mere subject of velocity itself has been attempted here. A discussion as to the best means of generating velocity, and all the multifarious factors which enter into its consideration, may be presented at some future day—it being the source of so many various kinds and makes of rifles.

THE PROVINCE OF GYMNASTICS.

BY C. E. FREEMAN. '89.

REGARDING the idea of gymnastics in college, two questions naturally arise: What is its object? Who need it?

In the first place, it will be proper to define what is meant by gymnastics. By gymnastics is meant that kind of exercise that is obtained by the use of the various appliances that constitute the modern gymnasium.

The object, in the best managed college gymnasiums of the country, is the harmonious and symmetrical development of the physical being. Just what such development means is appreciated by few. Many seem to think that the prime object of gymnastics is the accumulation of muscle. This is no more true than is the idea that the accumulation of facts is the prime object of a mental education. The ultimate aim of the mental training of the present is to enable the individual to make the most of his thinking powers, natural and acquired. The final object of physical culture is to give the individual mastery over his physical organism.

There are results concomitant with such a mastery that are scarcely less important than the mastery itself. The relation of body and mind is so intimate that a control of one necessitates a control, more or less complete, of the other. Again, there is imparted to the system an energy of spirits—a power of conception and execution—the ability to will and to do—that always accompanies such exercises, and which is obtainable in no other way. Incidentally the individual is lead to examine and more thoroughly appreciate and practice the laws of health. He learns from experience what his bodily powers are, and is not so liable to undertake the injurious. It is the person who does not know what he can do that injures himself either mentally or physically. Action is a law of life, and when an organ becomes inactive it weakens and becomes susceptible to disease. Activity of all parts of the body is therefore a fortification against ills. Gymnastics give a grace of manner, ease and comfort of motion, along with endurance and presence of mind, that alone are worth their cost.

Now, who need physical training? The answer to, Who need mental training? will do for both. But various are the excuses made for their neglect. A young man or woman enters college, possessing a strong physique, full of energy, and the picture of health. What need has such a one for exercise? As a matter of fact, such persons are more in need of exercise than those who are not so fortunate. Student life is to them doubly confining, and aside from the necessity of keeping up their strength and energy, and thus insuring their greatest usefulness, is the warding off of ills that almost invariably attend the transition of an active life to a sedentary one. The round-shouldered, hollow-chested individual says that he has no time, and that it is all he can do to accomplish the work laid out for him. No wonder the poor soul does not have any spare time. It is a well-known principle in mechanics that a small force requires a longer time to accomplish what a larger force will. Now, let this young man stir up his stagnant blood, breathe to the bottom of his lungs, straighten those shoulders,

and expand that chest, and he will find his mind clearer, his energy redoubled, and a general sense of comfort and satisfaction in work well done that he did not dream possible before. But the persons whose conditions fall between the extremes mentioned above—what of them? One individual says he has enough exercise walking to and from his boarding house, aside from that obtained in the industrial. If this same person were to tell young Mr. Smith that the object of a college education was to make the person educated a more useful citizen by giving him a greater command of his thinking powers, along with the acquirement of new ones, what would he think if Mr. Smith replied, "I need none such. I can think enough to do the business that I need to do to make a living." Yet the answers are equally consistent.

Physical training bears the same relation to the manual affairs of life that a mental training does to the intellectual. An accomplished gymnast will be a more apt mechanic, and will become a better one in the same length of time than one who is not, because being a gymnast implies muscular control, and to be able to place the hand where it is needed is a prerequisite of the apt artizan.

POPULARITY.

BY JULIA R. PEARCE. '90.

THE desire to be popular is of course a laudable one, providing one's ideas of what popularity means are correct. But the frantic efforts some make to be on the good side of a certain person, or to "stand in" with a certain clique, are not only laughable, but show plainly to more independent thinkers that their idea of being popular is a mistaken one.

The fundamental idea is the same with all: to please, to have your acquaintance desired; in other words, to be in demand, and thus to add to your own enjoyment. Perhaps with you, the whole social world is centered in one person whom you fancy to be already very popular, or one whom you think well up in the social scale. You are proud to be noticed by him, are proud to be seen in his company, and affect to be on familiar terms with him. You may be all wrong in your estimate of your chosen leader, and he or she may not be as truly popular as you suppose. Perhaps it is more truly notorious; and your conduct in trying to ingratiate yourself with him is better understood by people of more sound judgment, who see you only in a ridiculous light. Instead of gaining the social position you desired, you are unpopular, and have but the one friend, who, ten chances to one, is not a real friend, but sees you as others see you.

Perhaps you are anxious to be in a certain set or clique whom you fancy to be popular, but whose popularity perhaps does not extend beyond their own number,—a sort of mutual admiration society, as it were. You fancy that if you were one of them, good times would be ensured. You sacrifice anything and anybody to meet their approval, agree with them in all things, are afraid to express yourself originally on any topic until you have heard some of their number express an opinion, and then you are enthusiastic on your new view of the subject. You affect to admire whom they admire, and make sport of your best friends because you think you are expected to. You generously make philosophic observations among your own number about the unhappy trials of those outside your circle. You pity those whom you think are so unpopular because they do not belong to the set, while perhaps if the truth were known they could count their friends—true, staunch friends who are worth having—by the dozens, while you can count only your six or seven intimates whom, down in your heart, you do not really trust. If your "unpopular" acquaintance

has solid worth he will have friends; and whether he ever makes an effort to be popular or not, his worth will be found out in time; whether he wills it or not, and the steady growth he makes in popularity is independent of how he stands with your clique.

You may fancy you are undetected in your desperate efforts for ingratiation. Don't flatter yourself. The clique you so affect may accept you for a time, but your popularity goes no further. They are usually all sufficient unto themselves; their ideas are narrowed down to within a small circle, and clearly for others but in the embryo. If you ever have the good fortune to rise above this level and see them as others of wider experience see them, you will understand.

If popularity means the approval of the people, as the word itself implies, the person who wishes to be truly popular must cultivate all those good qualities which will make him of use to others, and a real pleasure to those whose approval is worth gaining. The word ought to imply, it seems, the love of the greater number of the people whom we meet, instead of the approval of a person who perhaps is unworthy, or of a small select set of auto-aristocrats, the selection being their own estimates of themselves.

If you fancy a few gay, but selfish, egotistic companions do not appreciate you, don't worry. It is not a proof that you are unpopular. Be independent of their crotches, and time will place you on a footing where you will not only care little for their opinion, but will find that without trying you have won their esteem. If you have a desire to be popular, be worthy, do all the good you can for others, but never lose your self respect.

STUDENT USE OF THE LIBRARY.

BY SUSIE HALL. '93.

WE have a privilege here which is not given to all students in all Colleges, and that is a free use of the library. We may go in at any time we wish, draw any book we wish, or, if we happen to be a Third-year or Fourth-year, any three books we wish. We should appreciate, and not abuse, this privilege.

There are two ways in which to use a library—the way it should be used and the way it is sometimes used. The way in which a student uses it generally denotes what kind of a student he is.

We will divide the students into three classes. First, a bright-looking student comes into the library and goes immediately to some alcove, takes a book, and sits down to read, or perhaps draws it and goes out. He seems to know what he wants. But here comes another who does not know what he wants. He goes from one alcove to another, and seems quite bewildered among so many books of which he has not made the acquaintance. He wanders around awhile, and finally sits down in a corner with either some light novel or a story which he has found in some of the magazines, which will do him no good. Thus he wastes his valuable time; for a student's time is valuable. He evidently does not understand the use of a library.

Of the next class are two types of students: those who go into the library to look for some friend, and those who never go in at all. A student of the first class, in reading, each day, outside of his text books, that which concerns his lessons, is not only aiding himself in those lessons, but is broadening his intellect at the same time. You may be sure he takes good care of the book he has drawn, for he understands its value, and he does not forget to bring it back at the end of two weeks. He understands the use of the library. One of the second class, although he may not do himself any immediate harm, is not improving as he should. One of the third class does not even realize how much he loses.

Let us all, then, make a study of this, and be unwilling to leave College without a practical acquaintance with the library.

CALENDAR:

1892-93.

Fall Term—September 15th to December 23rd.
 Winter Term—January 8th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Commencement.
 1893-94.
 Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Prof Olin's family enjoy a new surrey.

The Fourth-years have adopted yellow and dark brown, the shades of the sunflower, as their class colors.

Mrs. C. N. Gibson, of WaKeeney, Kansas, guest of Laura Day, Fourth-year, visited College Wednesday.

Foreman House spent several days at Fort Scott this week, in attendance upon the Grand Lodge I. O. O. F.

The College Young Men's Christian Association have organized a Bible class in connection with their Sunday meeting, to be conducted by Pres. Fairchild.

Professors Popenoe, Willard, and Hitchcock attended the meeting of the Kansas Academy of Science at Atchison, this week. Prof. Popenoe is President of the body.

Pres. Fairchild and Prof. Georgeson will present papers at the Annual Convention of Agricultural Colleges and Experiment Stations, to meet in New Orleans next month.

The College will observe Columbian Day, October 21st, by appropriate exercises in the evening, leaving the day free for joining in any exercises arranged for by the City.

Two large loads of Fourth-years enjoyed a merry party at the home of their classmate, C. A. Kimball, Wednesday evening. Music, conversation, and refreshments constituted the programme.

Mr. J. S. Brockman, International College Secretary for the Y. M. C. A. work, spent last Sunday with our College Association, making an excellent impression as a talker and worker of good earnest sense.

Invitations have come to the Faculty from most of the various sectional teachers' associations to have representatives upon the programmes of Thanksgiving week. So far as practicable, the invitations will be accepted.

The Third-year social, held last night at the home of Bessie Morrison, was a very enjoyable affair. Games, music, and toasts were the order till a late hour. All present join in saying, "It is good to be a Third-year."

Mr. J. L. Howard is running a hack between town and College, much to the accommodation of students and visitors. Five cents a trip, or fifty cents a week for carriage both ways each day of College exercises, is a moderate charge enough, and the line is worthy of patronage.

The first division of the Fourth-year Class presented original work in chapel yesterday afternoon as follows: E. C. Abbott, "The Temperance Reform;" E. M. S. Curtis, "The Culture Demanded by Modern Life;" Corinne L. Daly, "Wild Roses;" Albert Dickens, "A Question of Choice;" Ione Dewey, "The Golden Opportunity;" M. F. Hulett, "A Disreputable Press;" Margaretha E. Horn, "Live Up to Your Opportunity;" Fred Hulse, "Patriotism in Education."

Miss Kate Oldham, '91, was united in matrimony on Oct. 5th at the home of her parents near Keats, to Dr. S. Sisson, formerly herdsman on the College farm, and now Demonstrator of Anatomy in the Ontario Veterinary College, at Toronto, Canada. The wedding was a quiet affair,—intimate friends and relatives only being present,—but was exceedingly pleasant. After the ceremony, which was performed by Rev. Pickett of the Christian Church of Manhattan, the guests sat down to an elaborately prepared breakfast. Following this

came a drive of fifteen miles to Manhattan, where the newly made family took the train for Toronto, their future home. The INDUSTRIALIST joins with many other friends in wishing these young people all of the good things of life.

STANDING COMMITTEES.

The President has appointed the following Standing Committees for the year:—

Farmers' Institutes—Professors Failyer, Popenoe, Walters, Graham, and Georgeson.

Post Graduates—Professors Popenoe, Failyer, Hood, Georgeson, Nichols, and Hitchcock.

Library—Professors Lantz, Failyer, Popenoe, Olin and Georgeson.

INDUSTRIALIST—Professors Walters, Failyer, Thompson, Georgeson, and Mason.

Examinations and Grades—Secretary Graham, Professors Lantz, Olin, White, and Misses Harper and Rupp.

Public Exercises—Professors Olin, Popenoe, Kedzie, Brown, White, and Bolton.

Social and Literary Entertainments—Mrs. Kedzie, Mrs. Winchip, Professors Brown, Hood, and Miss Harper.

Buildings—Professors Hood, Walters, Mayo, Willard, and Mason.

Catalogue, Blanks, etc.—Professors White, Lantz, Graham, Thompson, and Willard.

Athletics—Professors Georgeson, Failyer, Mrs. Winchip, Professors Bolton and Mayo.

Museum—Professors Mayo, Failyer, Popenoe, Graham, and Hitchcock.

GRADUATES AND STUDENTS.

Ivy F. Harner joins the Fourth-year Class this week.

R. A. McIlvain, '92, visited College the first of the week.

Eva Dickson, First-year in 1890-1, was married recently to Mr. Whitley, of North Dakota.

H. N. Farris, student of last year, writes from Reno City, Ok., in the hope of returning to continue his studies.

Callie Conwell '91, writes from Spencer Academy, Nelson, I. T., of hard but interesting work among the Indians.

James Clarke, Second-year in 1889-90, book-keeper for Armour Packing Co., Topeka, was a visitor on Wednesday.

Onie Hulett, Fourth-year, is a delegate this week from the College Y. W. C. A. to the State Convention in Topeka.

D. F. Wickman, '92, writes of pleasant employment in the passenger department of the A. T. & S. F. Railway at Topeka.

May L. Winters, student last year, was married at Wabaunsee, October 12th, to Mr. A. C. Mitchell, Second-year in 1886-7, of Clifton.

H. E. Moore, '91, writes from Portland, Oregon, that fruit is a total failure. He states further that he hopes to take up post-graduate studies.

S. I. Wilkin, Third-year in 1891-2, writes from Bow Creek of seeding a hundred acres to small grain and taking care of what he has already raised.

G. G. McConnell, Third-year in 1883-4, is a candidate on the People's party ticket for the office of Clerk of the District Court of Shawnee County.

D. G. Fairchild, '88, is promoted to the place of First Assistant to Prof. Galloway, Chief of the Division of Vegetable Pathology, U. S. Department of Agriculture.

J. U. Higinbotham, '86, with his wife, called at the College several times this week during their visit in Manhattan. Mr. Higinbotham is in the employ of the Kenwood Cycle Co., of Chicago.

W. S. Arbuthnot, '91, is mentioned in the Concordia Empire as having taken part in the meeting of the Republican Valley and State Line Medical Society, held at that place recently.

Geo. E. Rose, Rosedale, Kan., Third-year in 1880-1, sends the annual programme of the Missouri Valley Horticultural Society, of which he is Secretary. The monthly meetings of this Society have been a prominent influence in Horticulture for years past.

F. J. Rogers, '85, sends an interesting pamphlet, entitled "Experiments in Physics, Part I, Compiled by Members of the Teaching Force of

the Department of Physics, Cornell University," in which Mr. Rogers' name appears as Instructor.

W. L. Morse, '90, has been selected as instructor in wood-work at the Ft. Hall Indian School, Blackfoot, Idaho, and expects to enter service soon.

W. A. Anderson, '91, stenographer in the Rock Island Railway offices, has been promoted and transferred to Herington, and is succeeded in Topeka by Archie Campbell, Second-year in 1890-1.

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, S. C. Mason; Vice-President, J. T. Willard; Secretary, Lottie J. Short; Treasurer, F. A. Marlatt. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, W. H. Phipps; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halstead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Moran, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice-President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donaven; Treasurer, John Patten; Critic, M. F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell, D. S. La Schelle, J. A. Scheel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Knickerbocker; Vice-President, Elsie Crump; Recording Secretary, Lorena Helder; Corresponding Secretary, Florence Corbett; Treasurer, E. Len Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

October 7th.

The Ionian Society was called to order with President Knickerbocker in the chair. After singing, Miss Lyman led in prayer. Roll-call. Program opened with a reading by Miss Frisbie. The next was a guitar solo by Miss Walters. She responded to a hearty encore. The debate on the subject "Orators have more effect on the public than writers," was argued on the affirmative by Misses Crump and Norton, and on the negative by Misses Pierce and Hartley. The Judges, Misses Day and Horn and Mr. Smith, decided in favor of the negative. The following persons, two old Ionians, the Misses Stingley, and our Websters, Messrs. Smith, Robertson, Patten and Kimball, addressed the Society. A vocal solo by Miss Helder closed the program. Adjournment.

F. R. C.

October 8th.

The Webster Society was called to order by Pres. Dickens. After roll-call, J. W. Evans led the Society in prayer. Messrs. Colman, Hunter, Dick, Remmell, Arnold, Farwell, and Uhl were elected members of the Society. Messrs. Remmell and Uhl were next initiated. Under debate, the benefit of strikes to the laborer was argued affirmatively by Messrs. Niemoller and Morse, and negatively by Messrs. Donaven and Kenyon. By vote of the Society, the decision was in favor of the negative. Mr. Wilburn delivered a somewhat original declamation. Mr. Peck read an interesting essay on "Central Texas." A humorous selection was read by Mr. Poston. Recess of ten minutes. Society listened to excellent music by the C. B. Selby committee. Under discussion, Mr. Trembley spoke of some wonderful improvements made in the line of farm machinery, and Mr. Gibson told us of some of the features of watch manufacture. Mr. Arnold was elected a member of our Society. Under unfinished business, the Special Session was set for November 19th. C. D. McCauley was elected an honorary member of the Society.

E. A. D.

October 8th.

The Hamilton Society was called to order by President Abbott. G. G. Boardman led in prayer. Several persons were elected to membership, and Messrs. Marshall, Peterson, and Phillips were initiated. C. D. Adams and R. B. Kerr argued the affirmative, I. Jones and G. Morris the negative of the question, "Do parents exert a greater influence in forming the character of the young than teachers?" The Judges decided in favor of the negative. C. S. Evans discussed railroad water stations; told how they were constructed and time saved by their use. C. R. Hutchings presented the Recorder. Among the contributions were "A Second-year Courtship," "Our Duty," "Some Hints on Our Programme," "The Dream of a Junior," "The minutes of the Scientific Club." J. J. Johnson's selection from George W. Peck's works was much enjoyed by the Society. W. E. Smith, music committee, secured the services of several members of the Webster and Alpha Beta societies who furnished the music for the evening. W. J. Yeoman, in his talk on agents, told what was necessary to make the agency business a success. The names of Messrs. Hall, Kellogg, and Peter were proposed for membership. Under the head of extemporaneous speaking, the Society listened to several members of the Webster Society. Adjournment at 10:30.

I. J.

October 7th.

A sharp rap of the Alpha Beta gavel in the hand of President Thackrey called to order a well-filled room of members and visitors soon after the lecture. After roll call, Miss Hulett led in prayer. W. O. Lyon, our funny-man, in a forcible manner delivered a well prepared oration, "Are We on the Verge of Ruin?" Nothing that he said could lead anyone to think that he is a member of the Industrial Reform Army or that he is in sympathy with the Peoples' Party. He used a great deal of stress in stating that he believed the Peoples' Party platform a willful lie against the American People, and by comparing the United States of yesterday with that of today tried to show wherein the truth was the very opposite to almost every statement

[Continued on page 36.]

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Columbian Day—October 21st.

Teachers' examination on October 29th.

The enrollment of the Lawrence High School is 387.

The schools of Nickerson have enrolled 380 pupils.

Labette county has opened its new county high school. It is located at Altamont.

The enrollment in the State University is larger by sixty than it was this time last year.

Supt. Olin of the schools of Kansas City, Kan., has adopted the half-day system for all primary grades.

The *School Visitor* of Hutchinson is a handsome little paper, and full of good things for the teachers of Reno County.

The Northwest Kansas Teachers' Association will hold its fall meeting at Phillipsburg on Friday after Thanksgiving.

The Greenwood county teachers' library contains 200 valuable books. Every teacher can become a member by paying one dollar per year.

Through the kindness of Miss Kate Stephens, of Cambridge, the library of the University of Kansas has received as a gift for the Department of Sociology the writings of Mr. Edward Atkinson. With the exception of two books, "The Distribution of Products" and the "Report on Bi-metallism in Europe," they are published in pamphlet form or have appeared in some of the leading periodicals of our country.—*University Courier*.

Fred Bassett, son of Judge O. E. Bassett of Lawrence, shot W. E. Higgins and John Craycroft, students at the University, Tuesday, with a shotgun. Higgins and Craycroft were returning home from a foot-ball game, and had crossed one corner of Judge Bassett's lot. As they reached the sidewalk, young Bassett emerged from the house, not far distant, with a shotgun, and fired. Craycroft was wounded in his right side and arm, but not seriously. Higgins was shot in the stomach, but not necessarily fatally. When Higgins fell, Bassett entered the house, put his gun away, and picked up the evening paper. He is now in jail, and says he had warned the students not to cross the lot. Higgins entered the law school this fall. For two years previous he had been Principal of one of the Topeka schools. Craycroft is from Hiawatha.

The report of an interview with Miss Susan B. Anthony by a Kansas City *Star* representative closes in the following interesting paragraph: "Miss Anthony thinks we are upon an era of unmarried women. She says so calmly, and does not seem to be alarmed over the fact in the least. When asked for her views upon the question of the clash between men and women in the fields of labor, she said that it was an unhealthful condition of affairs, but one that could not be helped. 'It is caused by our changing civilization,' said she. 'Take a man with a large family. He cannot make enough to support the family, and there is nothing at home to busy the daughters. The women used to spin, weave, make carpets and soap, and do all that kind of work, but now all this is done in factories, and there is nothing for them to do but to go to work in the factories or elsewhere. Young men do not make enough to support a wife, and so do not marry, and again there is such a craze among them for drinking, gambling, and dissipation that many young women would rather go into a store and work for almost nothing than to marry one of them. Yes, I think there is no doubt that we are upon the eve of an era of unmarried women. It is not a condition to be desired, but conditions are never pleasant during a period of social revolution, and I think it will end in a state of society which will be an elevation for both man and woman.'"

It is an exploded idea that "any fool can farm." Occasionally some member of that guild still tempts it, but he leaves off poorer than when he began. It is but the bare truth to say that few occupations or professions demand a wider range of knowledge or greater adaptability in the individual than this. Truly, successful farming permits of doing nothing by routine. New condi-

tions and new questions arise constantly, and require a man of resource to cope with them. Some of us find that we are not equal to these demands, because the basis of our agricultural training was laid too narrowly. Let us remedy this with our boys, and give them a broad education and that thorough training which will enable them to apply as the needs arise in life. It is the man of broad mind, who can study the soil, the crop, the market, the principles of plant growth and animal nutrition, who makes the best farmer; and these things are not learned by merely following the plow and by hoeing the same old row that our fathers hoed.—*Kansas Patron*.

HANDIWORK AT THE FARM HOME.

Among a number of boys and girls there ought to be one for each piece of work about the house, from the hemming of towels to the construction of cupboards and sheds. When a boy can keep in order every gate, door, machine, and clock on the place it is time enough to talk about "extra manual training." The notion that this whole business ought to be turned over to the public teachers has spoiled some parents for their share of co-operation in the greatest of all schools—the school of industry. In old times every child was obliged to do his or her "stint;" why not now? In the home where all help with the work and the habit of regular employment is found, the foundation is laid for every trade and calling, from cooking and ploughing to teaching and preaching. Unflagging industry is the universal secret of success. Thought of the farm house as the very centre of industrial education is what is wanting to interest all hands more thoroughly and raise up the stooping forms of father and mother to higher responsibility and better times.

Those who must teach must also learn, and therein is the secret of continual interest and inspiration in the farm work. Smart boys and girls love to be where "something is going on," something to learn, to think about, as well as to do. Where all are interested together in repairing, improving, planning, economizing, there is little danger of young folks scattering. A new tool now and then, of the many fine ones within easy reach, is an added chapter for all. It is not so much the new school and expensive apparatus that is lacking as more interest in the things to be done and made every day. The handsomest Christmas present I saw last season was the handiwork of a country boy on Saturday afternoons—an oaken box carved in oak-leaved panels and lined with red satin. Even the youngest on foot have their share in the industrial home. A mother said: "Jimmy does not seem to be strong enough to pour water without spilling." Instantly the seat by the pitcher was in demand, and even Jimmy, the awkward, learned the art of water-pouring.—*Louise M. Fuller, in New York Tribune*.

STRANGER THINGS COMING.

Talking about the crusade against bad and for good country roads, a facetious fellow has the temerity to ask: "If the farmer of the future has good roads, free mail delivery, a piano for his daughter, a top buggy for his boys, a typewriter for his correspondence, and a telephone through which to hold conversation with the town folks, where will be the charm of country life?" Just bide your time, young man; there exists no reason why the farmer's home may not have the same elegancies, comforts, and business facilities as that of the town merchant who lives in the country, and who makes all of his money with which to enjoy them out of his farmer patrons. Presently he will ride to town by electricity and do his plowing, harrowing, and reaping by the same motive power. Bide your time, young man; we have seen stranger things within the past fifty years.—*Rural World*.

Probably one half of the \$20,000,000 a year which the Government spends on rivers and harbors goes into unnecessary roadsteads and streams, the main use of which is to float saw logs down during a freshet. If this amount could be devoted to improving the common roads of the country, the good effect would be felt in every township.—*Kansas Farmer*.

A dispatch from Buffalo says that the first train out on the Philadelphia & Reading road on September 2d, made the phenomenal run of nine miles in six minutes. The train consisted of an engine and two heavy passenger coaches, and all through to Rochester the run averaged a mile a minute.

[Continued from page 35]

in the platform. He spoke of our country's wealth in morality, intelligence, religion, dominion, and gold. After the reading of a somewhat humorous selection by A. E. Ridenour, the question, "Resolved, that the languages should be taught in this College," was discussed by Mr. Buck and Jennie Smith on the affirmative and by Elva Palmer and E. J. Hartzel on the negative. The affirmative thought a broad education, an understanding of the sciences, that we may teach English, the stirring up of reserve force, deep thinking, depend upon a knowledge of the language; while the negative insisted that we haven't time here, the course is now full and running over; it would defeat the very object of the institution; it is the farmers' school, and the farmers have greater need of something else; it would cripple the English course, the State supports a University where languages are taught, there are numerous Colleges all over the State where those who wish may study languages. Judges Odle, Kimball, and Christensen decided in favor of the negative.

"A single thought, if but your own,
Is better than a thousand gleaned
From fields by others sown,"

was the motto of a very interesting edition of the *Gleaner* by Sadie Moore. The violin solo by E. J. Abell and guitar solo by Mr. Buck were listened to with interest. Miss Cottrell read the *Newsman's* report; and after arranging a program for the Annual exhibition, and listening to Miss Toothaker's criticisms on the work of the day, the Society adjourned at 6 o'clock.

W. H. P.

MANHATTAN ADVERTISEMENTS.

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THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, OCTOBER 22, 1892.

NUMBER 9.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT.

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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The Experiment Station should be addressed through the Secretary.

THE WAY TO SUCCESS.

BY ALICE RUPP.

A N easy way? Let us glance at the subject a moment before we attempt an answer. I know a boy often looks at a very rich man, a great writer, a wonderful inventor, or a very great scholar, and wonders how each reached the very acme of success. He knows at sometime that each was a child, that grew to be a boy, that grew to be a man. Nothing strange in this. Perhaps he would like to stop each one, grasp him by the hand, and ask how he became so successful in his chosen pursuit. If he should, each would doubtless reply, I gave my entire time and thought to this thing, and if you do the same you will succeed, and in no other method. This may seem an extremely hard way, but it is the only one to the City of Success.

How have some of our great men reached that much to be desired City? Lord Macaulay labored with constant and enthusiastic zeal on his great history. Thackery said of him: "He reads twenty books to write a sentence; he travels a hundred miles to make a line of description." His marvelous pages are the result of patient investigation and careful writing.

Agassiz used to say he wished the day would never end. He labored faithfully for sixteen or eighteen hours out of the twenty-four. Once when asked to lecture for money, he replied: "I have no time to make money." He meant he must stick to the work he had chosen. True, Agassiz was a genius, but if he had not consecrated his genius to his work he never would have triumphed.

The Central Pacific Railroad was built by five merchants of Sacramento, who devoted their fortunes and influence to its construction. The great mountains of difficulties which beset them on every side seemed insurmountable. The stock sold slowly. Every rail laid, every spike driven, had to be brought thousands of miles around Cape Horn. Water was brought to the laborers a distance of forty miles across the American Desert. Workmen were scarce, and ten thousand Chinamen were brought across the Pacific. Hence we see that no great end is accomplished in any phase of life without persistent and determined effort. So boys, consecrate yourselves to your chosen vocation and you will succeed.

Remember that this great, beautiful, and wonderful world, with all its wealth and woe, with all its mines and mountains, its oceans, seas, and rivers, with all its shipping, its steamboats, railroads, and magnetic telegraphs, with all its millions of men, and all the science and progress of ages, will soon be placed in your hands: boys now assembled in school-rooms, and college halls, or playing without them, on both sides of the great Atlantic, will soon control them all! Think of the vast inheritance, and prepare yourselves to receive the stupendous possessions. For are not the kings, presidents, ministers, governors, statesmen, philosophers, and teachers of the future our boys of today?

Knowing this, be making ready to act well your part. Become good and thorough students. Read only that which is instructive: fritter away none of the precious moments with trashy literature. Study science and government and the history of the world. Study agriculture and mechanism. Strive to perfect yourself as nearly as possible in your chosen profession. Form good and manly habits, thus laying the foundation for a noble character. Take the Bible for your guide, and not only become familiar with its teachings, but observe them. Seek your Heavy-

only Father in days of prosperity as well as in adversity. As ye grow in stature, in bodily strength, and in years, grow ye also in piety and intelligence, in caution, in activity, in firmness, and in charity. Aspire to be men of noblest character, feeling that you were born to do good and receive good. The Bible says, "Seest thou a man diligent in his business; he shall stand before kings; he shall not stand before mean men."

NOTES ON SOME KANSAS WEEDS.

BY PROF. A. S. HITCHCOCK.

[Read at the Kansas Academy of Science October 14, 1892.]

T HE appended list of fifty species of plants may be considered as bad weeds. They persistently intrude themselves among cultivated plants and as persistently resist man's efforts to eradicate them. The fifty vary much among themselves as to their noxious qualities, but they are quite generally acknowledged as weeds, and many of them play scarcely any other role.

Many eastern weeds are not represented in the list, as, *Cnicus arvensis*, the Canada thistle; *Chrysanthemum Leucanthemum*, the daisy; and *Ranunculus acris*, the buttercup; while on the other hand some that are bad weeds here are unknown in the Atlantic States.

Several species have not yet spread over the entire State. *Hibiscus Trionum*, *Melilotus alba*, *Lactuca Scariola*, *Cynoglossum officinale*, and *Ipomoea hederacea* are mainly eastern; *Iva xanthiifolia*, *Echinospermum Redowskii occidentale*, and *Cycloloma platyphyllum* are western; *Solanum elaeagnifolium* is confined to the southern tier of counties.

Fourteen natural orders are represented, as follows: *Compositae*, 10; *Gramineæ*, 9; *Solanaceæ*, 7; *Cruciferæ*, 5; *Amarantaceæ*, 4; *Polygonaceæ*, 3; *Chenopodiaceæ*, *Convolvulaceæ*, *Boraginaceæ*, and *Malvaceæ*, 2 each; *Berberidaceæ*, *Portulacaceæ*, *Leguminosæ*, and *Phytolaccaceæ*, 1 each. Except for the first two, this is scarcely in proportion to the total number in the world or in America. Of the 35 genera represented, the following are the most important: *Solanum*, 4; *Amarantus*, 3; *Polygonum*, 3; *Brassica*, *Erigeron*, *Ambrosia*, *Datura*, *Panicum*, *Setaria*, *Eragrostis*, and *Hordeum*, two each.

Twenty-six species are native, among which are some of the most troublesome, as, *Ambrosia trifida*, *A. artemisiæfolia*, *Xanthium Canadense*, *Solanum rostratum*, *Acnida tuberculata*, and *Cenchrus tribuloides*. Of the introduced species, 18 are from Europe, 4 from Tropical America, and 2 from Asia.

Nine species are travelling eastward. Most of the other introduced species have come from the East, but have already passed far beyond Kansas. All flower and fruit abundantly, although some of the worst, as, *Xanthium* and *Cenchrus*, produce comparatively few seeds to the plant.

As to the fruiting, 11 species produce numerous small, round seeds in capsules; 2 have few seeds in a capsule; 15 produce single unappended seeds to each flower. These 28 species are provided with no special adaptation for dissemination. *Erigeron Canadensis*, *E. strigosus* and *Lactuca Scariola* are provided with a more or less developed pappus. Eleven species are provided with appendages to the fruits or seeds by which they are carried from place to place in the clothing, or the hair of animals; 6 are berries; *Amarantus albus* and *Cycloloma platyphyllum* are tumble-weeds.

Six species are perennials; all the others are annuals or biennials, and hence depend on their seed for propagation.

An analysis of the methods of fertilization can

not be given, but many are undoubtedly self fertilized. Seventeen species have what may be called conspicuous flowers, including *Helianthus annuus*, *Arctium Lappa*, *Melilotus alba*, and *Phytolacca decandra*.

From the above it would seem that these fifty species of plants are not, on the whole, capable of being weeds by virtue of curious adaptations for insect fertilization or dissemination, nor by the possession of deep-seated underground parts. It is more probably by the possession of a combination of biological properties which may be included in the term "inherent vitality." This point is being further investigated.

The following were doubtfully excluded from the list: *Ambrosia psilostachya*, *Coreopsis tinctoria*, and *Enslenia albida*.

LIST.

Argemone platyceras, Mexican poppy; *Sisymbrium officinale*, hedge mustard; *Brassica Sinapis*, charlock; *Brassica nigra*, black mustard; *Capsella Bursa-pastoris*, shepherd's purse; *Lepidium intermedium*, peppergrass; *Abutilon Avicinæ*, velvet-leaf; *Hibiscus Trionum*, bladder ketmia; *Portulaca oleracea*, purslane; *Melilotus alba*, white sweet clover; *Erigeron Canadense*, horse-weed; *Ambrosia trifida*, large ragweed; *Ambrosia artemisiæfolia*, small rag-week; *Xanthium Canadense*, cocklebur; *Iva xanthiifolia*, false sunflower; *Helianthus annuus*, sunflower; *Bidens frondosa*, Spanish needles; *Arctium Lappa*, burdock; *Lactuca Scariola*, wild lettuce; *Cynoglossum officinale*, hound's tongue; *Echinospermum Redowskii occidentale*, western stick-seed; *Ipomoea hederacea*, pink-flowered wild morning-glory; *Convolvulus sepium*, white-flowered wild morning-glory; *Solanum nigrum*, night shade; *Solanum Carolinense*, horse-nettle; *Solanum elaeagnifolium*, downy horse-nettle; *Solanum rostratum*, Texas nettle; *Physalis lanceolata*, ground cherry; *Datura Tatula*, purple stramonium; *D. Stramonium*, white stramonium; *Amarantus retroflexus*, pigweed; *A. albus*, tumble-weed; *A. blitoides*, carpet weed; *Acnida tuberculata*, acnida; *Cycloloma platyphyllum*, winged pig-weed; *Chenopodium album*, lamb's quarter; *Phytolacca decandra*, pokeweed; *Polygonum aviculare*, door-weed; *P. Muhlenbergii*, knot-weed; *P. Convolvulus*, bindweed; *Panicum sanguinale*, crab grass; *P. Crus-galli*, barnyard-grass; *Setaria viridis*, green foxtail; *S. glauca*, brown foxtail; *Cenchrus tribuloides*, sand bur; *Eragrostis major*, snake-grass; *E. pilosa*, eragrostis; *Hordeum jubatum*, squirrel-grass; *H. pratense*, wild barley.

FARMING AS A CALLING.

It would be absurd to advise all young men to engage in farming, but a young man having reached that point where he must decide what occupation he will follow, if he has a taste for and strength of body to take up farming, should do so, and enter upon it with the feeling that it is to be his life work, and that success is within his reach. Now, why should a young man take the calling of a farmer if his natural inclinations lead him in that direction? Does such an occupation hold out sufficient inducement to educated, intelligent young men? It is not difficult to answer such questions satisfactorily. Every profession is crowded, and many who have spent long years in preparation hardly get a living. In business circles the same is true, and with the tendency of the present times for large corporations or firms who control large sums of money to freeze out absolutely small concerns there is little, almost no, chance for the latter to succeed.

There is no such condition of things in agricultural affairs; the farmer is the most independent person that can be found; his employment is among the most healthful because in the open air with abundant exercise. He is almost absolutely sure of a crop that will yield a fair return for his labor; the ups and downs of business and the tightness of money affect him the least of all; he

is in the sphere God designed for man, where he can see nature in all her forms and moods and drink deeply from nature's fountains that are constantly open to him as they are not to those who dwell in the town. If fitted, he may be a leader within a certain limit, and become highly useful in promoting the interests of church and State as well as in many other directions. He is sure of a living if he gives attention to his business and is not liable to fail, as ninety-five out of every hundred business men of the city do some time in their lives. The reasons for this are obvious. There is a wide field open before the intelligent farmer in the improved methods of growing crops, new varieties of vegetables and fruits, improved breeds of animals, etc.

The same amount of capital invested in a good farm will pay a better income if properly handled than in any other business that is equally safe. Many will ask why, if farming is so safe and desirable, are so many farms in New England abandoned, the young men having left the country for the cities and towns? There are several reasons. Some farms are poor by nature, and never should have been reclaimed from the forest. Others have been so poorly managed that they have run down and become unproductive. In other cases the owners were ignorant, lacked ambition, had contracted bad habits, neglected their business, entered into speculation and lost, etc. Such persons would probably not have succeeded in any business.—*J. F. C. Hyde, in the Congregationalist.*

CO-OPERATIVE CONVEYANCE AND SCHOOLS.

A new idea in the common school system in country towns was originated in Concord, Mass., some years since by Mr. John B. Tileston, and is now spreading rapidly and bids fair in time to revolutionize the educational methods of the rural districts everywhere. The idea, like all great inventions and discoveries, is very simple. It is, that it is cheaper and better to establish one large graded school in a town to which all the children are brought by free carriage than to have half a dozen schools, more or less, in as many districts to which the children must find their way themselves. Concord, having two villages, has two schools, one in each, located in fine buildings. Bedford has taken up the same idea. In its territory of five square miles are 1100 people and 170 school children, educated on an annual appropriation of about \$2,000. It has closed its four outlying schools, and now has but one school-house, located at the center, with accommodations for high, grammar, intermediate, and primary schools, all in this building. Instead of seven teachers, four are found sufficient. The children are daily brought from their homes and returned at the expense of the town, and farmers' wives are hired as drivers, the service costing only \$6 a week for each conveyance. The school is now pronounced by competent judges as equal to any in the large cities, while no child has to walk over a third of a mile, and the cost of the schooling is no more than under the district plan. The Concord plan has also been adopted in Lexington, and is now being introduced into other towns. Experience shows that wherever the new method is tried the children can be taken back and forth quite as safely and with as little liability to evil associations as by the former method, while the teacher, freed from the great number of classes, can give more attention to individual pupils. By the new method real estate in outlying districts has improved in value, owners recognizing that their children have new advantages. Evidently the little red school-house at the fork of the roads, the dusty walk with swinging dinner pail, the dozen classes, each often of only two or three, that have to hurry through their turns before the weary teacher, all are doomed to extinction. Like the dodo, the dromornis, and the buffalo, they will soon be a memory only. And the country will have new vitality and power when with this device it can find others equally efficacious to make its privileges equal to those in the city. The next thing will be gospel wagons to bring all the people to church, and after this the electric wire stretched along the country roads so that every farmer can tap its power to thresh his grain and churn his butter.—*The Advance.*

Little things in agriculture represent the difference between profit and loss. A few more bushels of grain per acre, a little heavier yield of butter per cow, a little faster gain of flesh on the fattening cattle, and all these can be secured by proper care.

EDUCATED FARMERS.

It is said that there is not sufficient scope on the farm for the educated young man. This we deny most emphatically. There is scarcely any limit to the range he may take if he so desires. He may take to chemistry to ascertain the ingredients of the soil he cultivates, and find out what he ought to supply to insure greater success. He may make a study of the weather, which will the better enable him to secure his crops without injury. He may improve not only his own business, but that of the whole neighborhood by the introduction of new breeds of animals or new varieties of fruit or vegetables. He may show his neighbors, both by precept and example, better methods of farming. He may represent his country as President of its Agricultural Society, or as delegate to the State Board of Agriculture. In short, if he is disposed, he will find a broad field of usefulness open before him upon which he can enter and become an important factor in the world around him.

It is not to be wondered at that young men are not attracted to farming as a calling when they go about certain portions of the country and see the condition of things; but if they will take the trouble to visit stock and other farms run by intelligent men on business principles they will come to a different conclusion. Not all can be equally successful in farming any more than in other kinds of business. Some will lead and others must follow as in every department of life. There is no reason why farming, East or West, may not be a profitable as well as a pleasant calling for wide-awake, educated, enterprising young men, and it is gratifying to know that more and more each year are turning their attention in this direction and becoming producers rather than merely consumers.—*The Congregationalist.*

A writer in the *Farmer and Stockman* thus describes the successful farmer: "He who owns a farm is a monarch of his own premises. No one dares to molest him. The successful farmer rotates his crops, uses all his manure, turns under his green manure in summer. He sows good seed. He thoroughly prepares his seed bed by perfect cultivation, removing as much trash as possible, this trash being often the hiding place of insects and other crop pests. He keeps the briars and bushes out of his fence corners. He keeps his gullies and washes filled up, his poor points manured. He will take out of his bottoms the washed down sediment from the hillsides and redistribute it over his farm. He will use nothing but the best farming implements. He will not tolerate a dull plow or axe. He has good barns and stables and dry lots. He has reasonable shade in his pastures for his stock, and good healthy stock water. He has good racks and troughs."

Dehorning is a great educator, making the animals docile and teaching them to be very careful about quick motions with their heads, which they are apt to make when armed with the dangerous horns, and preventing injury to each other when loose in the stables or passing through narrow lanes. And when the loss and injury by goring horses, colts, and cows is estimated and the absolute safety of the one in charge of the herd is considered, people will wonder why the dangerous and useless horns are tolerated in any well-regulated dairy. Why a bull, with his proverbial cunning and feigned docility, playing 'possum only for a good chance to rip his keeper open, should be allowed for a moment to carry such fatal weapons is past all conjecture.—*Farm, Field, and Stockman.*

A school boy of Australia put his youthful enthusiasm into an effective essay on total abstinence as follows: I abstain from alcoholic drink because if I would excel as a cricketer, Grace says "abstain"; as a walker, Weston says "abstain"; as an oarsman, Hanlon says "abstain"; as a swimmer, Webb says "abstain"; as a missionary, Livingston says "abstain"; as a doctor, Clark says "abstain"; as a preacher, Farrar says "abstain." Asylums, prisons, and workhouses repeat the cry, "abstain!"

One secret of hard times upon the farm is the waste—waste of material, waste of time. Proper economy would make many a hard run man prosper.—*Farmer's Home.*

"Running a farm for all it is worth" has a different meaning with different men. With one, it means exhaustive farming; with another, intensive farming. Which is yours?

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.
 Winter Term—January 8th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Commencement.
 1893-94.
 Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton, Kan., at once.

LOCAL MATTERS.

Prof. Willard is elected First Vice-President of the Kansas Academy of Science.

Prof. Olin delivered the Columbian Day address yesterday before the Wamego schools.

Rev. R. M. Tunnell, President of Fairmount Institute, Wichita, led Chapel exercises on Monday.

The rainfall of an inch Monday night refreshes vegetation wonderfully, wheat having made an especially noticeable growth since then.

The Webster Society will hold a special session on the evening of November 19th, to which a limited number of guests will be invited.

Mr. George F. Coan, of Salina, has made arrangements to take a large photograph of the whole body of students on Tuesday morning next.

First and Second-year foot-ball teams celebrated Columbus Day in a hard-fought contest, with a result of 8 to 0 in favor of the Second-year boys.

Foreman Shelton, of the Farm Department, is just home from the East, to which he returns in April with his family, having accepted the Superintendency of the fine stock and dairy farm of Mr. Francis Shaw, a millionaire of Boston. The farm comprises seven hundred acres, and is situated near Wayland, Mass., seventeen miles from Boston. Mr. Shaw owns the largest herd of Guernseys in the country, and all of them are imported animals.

The Committee on Post-graduate Courses have recommended the following applications: J. B. Brown, agriculture and physics; F. C. Burts, agriculture and botany; Mary Cottrell, horticulture and chemistry; F. C. Sears and F. A. Waugh, horticulture and botany; Ava Hamill, Zoology and domestic economy; Marie Senn, chemistry and domestic economy; Lora Waters, botany and domestic economy; Alice Vail, botany and domestic economy, with literature; G. W. Wildin, engineering and physics. Post-graduate students previously assigned are C. E. Freeman, mechanics and mathematics; Minnie Reed, botany and household economy; Lottie Short, domestic economy and chemistry.

The fall term social for students and Faculty was held at the College last evening. The fore part of the evening's entertainment was conducted by Prof. Walters, assisted by Prof. Hood and the magic lantern. The views presented were appropriate to the occasion, being pictures of Columbus in his efforts to secure aid for his various discoveries, his fleet as it left Spain, and many views of historic places of note. Near the close, the plan of the World's Fair Grounds and the more important buildings were exhibited, and the interesting features pointed out by Prof. Walters, who had the privilege of a personal examination of them last July. After the public exercises in Chapel, the various classes were assigned certain portions of the building where they furnished their own amusements. In various conspicuous places were placed boxes, in which might be deposited the nickles and dimes of those who desired to contribute to the Kansas Educational Exhibit Fund, and a handsome sum was the result. On the whole, the social was a success in every way.

A MODEL DAIRY BARN.

A resident of Junction City who recently visited Vice-President Morton's stock and dairy farm at Rhinecliff, N. Y., and of which H. M. Cottrell, '84, is Superintendent, says in a recent issue of the *Union*:

"Vice-President Morton's dairy farm contains 1000 acres. He keeps nothing but pure-bred Guernsey cattle. What caught my eye first was the new barn in process of construction. When completed, it will be, or supposed to be, the finest structure of the kind in the United States. It will be 300 feet long, 80 feet wide, and 3 stories in

height. The plans call for well nigh every convenience that can be suggested. Fresh water will stand before the cattle every hour in the day. The conveniences for feeding and cleaning approach perfection. There is a silo for 1000 tons of ensilage, room for 3000 bushels of roots, with stalls for 200 milk cows. Four levers will untie the entire herd, which is tied with fire-escape fastenings. There is space in the barn for 150 acres of sheaf grain. A 20-horse power engine will be replaced by one having 100-horse power. With this power, grain will be ground, roots cut, threshing done, grain and hay lifted and carried where desired, and water pumped. The entire barn will be lighted by electricity and painted inside with spar varnish. When occupied it will be washed daily. Mr. Cottrell himself was the architect.

"In looking over the dairy department, I find that the milk from each cow is weighed daily. The cream is separated, cooled, churned each day while sweet, and sold in New York City daily for from 50 to 60 cents per pound. The daily ration of each cow consists of from 15 to 20 pounds of oil meal. Bran costs from \$19 to \$20 a ton, corn meal \$24 and upwards, oats 45 cents a bushel, and hay \$15 a ton.

"No cow will be kept that produces less than 6,000 pounds of milk a year. The yield ranges from 6,000 to 12,000 pounds a year. During the year Mr. Cottrell tells me that seventeen pounds of milk give one pound of butter. He churns at 38°, and finds that the buttermilk contains but one-twentieth of one per cent of butter fat.

"Mr. Cottrell says that he is confident that Kansas farmers, with the cheap hay, grain, and pasture from such productive lands, can compete in New York and Boston in the butter market, if they would use the same care in making good butter, and give good cows the same attention and feed that he is compelled to do. Butter, he says, can be shipped east for 1½ cents a pound in refrigerator cars."

GRADUATES AND STUDENTS.

Miss Pollorm, First-year, enjoys a visit from her sister this week.

Marie Blachly, First-year in 1891-2, is teaching at Charity, Clay County.

W. K. Blachly, student of last year, visited friends at the College this week.

W. W. Ingels, student in 1889-90, now on the home farm at Good Intent, was a caller Tuesday.

Lucy Ellis, Third-year in 1890-1, teaches the home school at Havensville, but expects to return to College next year.

Marie Senn, '90, is called to teach in the Enterprise schools, but declines, that she may complete her post-graduate studies.

Dr. S. W. Williston, '72, Professor of Geology and Paleontology at the University, with his wife, attended the social last evening.

Mrs. Alice Peckham-Cordry, '82, has offered to the Ladies' Columbian Club of Riley County two oil paintings of scenes in this County.

H. V. Rudy, '90, writes from Fresno, Calif., that the growing of raisins and fruit still occupies his attention, and that prices are higher than usual.

W. H. Edelblute, '92, writes from Olympia, Wash. (Box 183), where he is instructor in one of the public schools a few miles out of the city.

A. Screechfield, Second-year in 1891-2, writes from Minneapolis, Kan., of work in a country school, but is spending spare moments in study.

Minnie Reed, '86, presented a paper on "Condensed Vegetation in Western Kansas" at the recent meeting of the Kansas Academy of Science at Atchison.

D. G. Fairchild, '88, returns to Washington this week, after his summer's work at the State Station, Geneva, N. Y. He reports a successful season in treatment of nursery stock for blights and other plant diseases.

H. Darnell and J. L. McDowell, '92; Lillian St. John, D. C. McDowell, G. V. Johnson, and P. C. Milner, '91; John Davis, '90; A. B. Kimball, '89; and W. E. Whaley, '86, participated in the social Friday evening.

W. E. Thackrey, Second-year in 1888-9, teacher in the Indian School at Sac and Fox Agency, I.

T., is taking a few weeks' rest in the effort to rid his system of malaria. He will spend his enforced vacation at home in Manhattan.

W. W. Hutto, '91, writes from Oklahoma Agricultural College at Stillwater: "The city furnished us a church in which to hold school, and on October 5th we quietly opened with seventy applicants. The total enrollment to date is ninety-four. We are somewhat crowded, scarce of appliances, and sadly in need of our library. However, the school may be said to be in a flourishing condition and the outlook bright. The bonds have been sold at eighty-five cents, and the Board of Regents are now here making arrangements for erecting a building. All students of both sexes are compelled to take drill. I found it hard work to handle and organize ninety raw recruits."

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, S. C. Mason; Vice-President, J. T. Willard; Secretary, Lottie J. Short; Treasurer, F. A. Marlatt. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, W. H. Phipps; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halstead; Newsman for second half term, Elvia Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Moran, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donaven; Treasurer, John Patten; Critic, M. F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell, D. S. La-Schelle, J. A. Scheel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Knickerbocker; Vice President, Elsie Crump; Recording Secretary, Orenia Helder; Corresponding Secretary, Florence Corbett; Treasurer, Edith Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

September 30th.

The Scientific Club was called to order by Vice-President Willard. The Secretary being absent, the reading of the minutes was postponed. On motion of Dr. Mayo the election of officers was postponed for one month. Prof. Willard gave a report on a variety of quartzite. Prof. Lantz reported of finding a nest of four eggs of the barn owl, a rare occurrence in this State. Some discussion was had on meteors introduced by Mr. J. E. Taylor. "The Kaw Indians" was the subject of a paper by Dr. Mayo. Some relics were exhibited taken from pits near Manhattan. Mr. Carleton gave a paper on "Some Western Plants for Ornamental Purposes." Specimens were shown from southwestern Kansas and States adjacent. Adjourned.

E. R. NICHOLS,

Sec. Pro tempore.

October 15th.

Promptly at 7:30 Pres. Dickens called the Webster Society to order. After roll-call, prayer, and reading of minutes, Messrs. Coman and Dick were initiated. That a well equipped gymnasium is the most necessary addition to the College equipment, was argued affirmatively by Mr. Hayes, who spoke of the benefits to be had from a systematic course of gymnastic exercises, and the present incomplete condition of our gymnasium. Mr. Jolly argued that there might be several other improvements made that were more essential to the success of the College. Mr. Pearson talked of the many manly accomplishments to be had from a course in gymnastics, while Mr. Eggleston urged that the tendency would be toward physical excellence rather than mental strength. The Society decided the question in favor of the affirmative speakers. Mr. Kistler told us some truths in a declamation, "What a woman can do" In an essay by Mr. Secrest, we heard some practical ideas on farm education. The discussions by Messrs. Ginter and Freeman were interesting. The Society music was furnished by the McCrea Band. J. M. Williams read No. 4 Vol. XIV, of the Webster Reporter. Adjourned.

E. A. D.

October 15th.

At the usual hour, the Alpha Betas came to order with President Thackrey in the chair. C. H. Thompson led the Society in devotion, after which W. O. Lyon and Miss Kimball were appointed to act as Recording and Corresponding Secretaries, respectively, until Ivy Harner and W. H. Phipps could be initiated. After roll-call, Mr. Timbers delivered a declamation, which was followed by G. L. Christensen in a carefully prepared essay on "Herodotus." "Resolved, That the Fourth of July should be abolished as a national holiday," was affirmed by C. H. Thompson and Miss Thackrey, and denied by Miss Toothaker and Mr. Harling. As sufficient reasons for its abolition the affirmative said, its original objects are forgotten; the exercises are degrading; it has become a school of intemperance; it has fallen into the hands of partisan politicians; while the negative insisted that it should be perpetuated because it is a school in which many learn all they ever know of freedom, of liberty, and what they cost; the American people are worked to death, and need even more holidays; nations are weak at their holidays have made them; this day is a terror to tyrants; if it is not what it should be, build it up; our national character will die out with our national holidays. The Judges decided in favor of the affirmative. Miss Ivy Harner read number four, volume eighteen, of the Gleaner. The violin solo by J. C. Christensen, Mr. Mercer at the organ, was a pleasant feature of the session. Under the subject of informal speaking, Mr. Mercer told about our gymnasium that is to be. Miss Parker spoke of the value of a better knowledge of Robert's Rules of Order, and Mr. Norton gave some good reasons why we should not dispense with our informal speaking. The names of Miss Waters and Mr. Longnecker were added to the membership roll. W. H. P.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Washburn College at Topeka has four colored students.

Several Hodgeman County districts are advertising for teachers.

The State Normal school at Emporia has a band of twelve members.

The Atchison County High School at Effingham has an enrollment of 129.

The school enrollment of Emporia shows an increase of 716 over last year.

The State Deaf and Dumb Institution at Olathe has over 200 pupils in attendance.

There were seven new school-buildings erected in McPherson County during the present year.

A Galena young lady boards at home and teaches school eight miles in the country. She is a bicyclist.

The total amount of teachers' salaries paid by McPherson County during the past school year was \$42,250.

The State University has 625 students. The University *Journal* classifies them as 114 "frats" and 511 "barbs."

The Parsons schools are so overcrowded that a new school building will have to be built to accommodate the increasing classes.

The Atchison School Board has honored ex-Senator Ingalls and the late Governor John A. Martin by naming two school buildings after them.

President David S. Jordan, of Stanford University, California, has promised to visit the Kansas State University on the 28th of the present month.

If every teacher in the State has done his duty on October 21st the ten thousand dollars required to make the educational exhibit at the World's Fair a success will have been raised.

Secy. G.C. Brackett of the State Horticultural Society intends to have the manuscript for the biennial report ready by November 10th, and the volume printed before Christmas.

Sotoro Namae, a Japanese student from Sen Dai, Japan, enrolled as a student in Baker University at Baldwin. Kingoro Obata entered last year, and the two are now class-mates and room-mates.

Miss Barry, for the past two years teacher of Latin and Greek in the Leavenworth High School, has resigned, and the Board of Education has employed Miss Scott, Principal of the High School of Huron, S. D.

The Baker University *Index* says that President Taylor, of the State Normal, was quarantined in Europe on account of the cholera; the President says it isn't so. He says he never yet traveled outside of American soil.

Here is an example of hyperbolic advertising. It is from the official publication of a private normal school, and reads: "Remember our tuition of \$10 for ten weeks admits the students to any or all the foregoing classes. Nothing costs extra here except music, art, actual business, shorthand, typewriting, military tactics, taxidermy, special elocution, and special penmanship."

The papers of the State are again aglow over the color question. About three weeks ago W. H. Simms, a well educated colored man of Oklahoma, was admitted to the Kansas Medical College at Topeka. This caused considerable trouble, and finally several members of the faculty threatened to resign. Simms was asked to leave the school, but declined positively to do so, and declared that he would take the matter into the courts if denied all the privileges of the school. The matter is not settled, as yet, and a law suit is unavoidable.

The victorious Kansas State University football team returned to Lawrence from Denver last evening and was met at the depot by six hundred wildly enthusiastic students who made the air resound with the University yell of "Rock Chalk, Jay Hawk, K. S. U." A triumphal procession was formed, with Chancellor Snow and Prof. Marvin, President of the Athletic Association, in a carriage at the head of the line, followed by the

Haskell Institute band. Then came the foot-ball team in a crimson-bedecked wagon drawn by the students, who were all the time shouting until it seemed that their throats would split, while tin horns added to the din. The victors were given a banquet after reaching the city, and after the banquet an immense bonfire was lighted and enthusiastic speeches were made.—*Kansas City Star*.

ROAD DRAINAGE.

The one thing necessary to a good road—earth, gravel, macadam, or paved—is thorough drainage of the foundation. Money has been misapplied in road-making because of neglect of thorough drainage, even when the money has been used to build roads of a material that should have given them a permanent character. On the Western prairies, where the natural drainage is poor, un-drained gravel roads have suddenly become mud roads when put to the severe test of a long rainy spell in winter and early spring. Not the least unfortunate result of this has been a prejudice against gravel roads in particular, and a scarcely less pronounced distrust of permanent roads in general. Lack of drainage was the real cause of the failure.

Whether the road is to be of earth, gravel, or macadam, the earth road should be graded, crowning it twelve to fourteen feet wide, and twelve to eighteen inches higher in the middle than at the edges. Along each edge should be cut a shallow ditch. This is a correct general statement, which, of course, should be modified to suit peculiar circumstances. Thus, in a very hilly country, especially if the soil washes easily, the ditches should not be cut at the sides, as they are not necessary, and will become serious gullies. In a hilly country it is not necessary to crown the road-bed so high, but the crowning must always be sufficient to insure ready surface drainage. Twelve to fourteen feet in width is sufficient; making the road wider has been found a needless expense.

With those soils and subsoils specially well adapted to drainage, crowning the roadbed and cutting the ditches at the sides will secure the necessary drainage; but where the soil and subsoil are not favorable to drainage, additional measures must be taken. In the country in which I reside, a gravel road has been made for twenty miles, near the Mississippi river bluffs. This road is on a soil and a subsoil decidedly gravelly, giving splendid drainage. This gravel road is now eighteen years old, and has proved satisfactory. The only means taken to secure drainage was to crown the roadbed a little in low places. To make a gravel road in this way over the greater part of the same country would be a waste of money, for in most places the soil is a black prairie loam, and the subsoil is a tenacious clay.

It has been found quite satisfactory in most localities having a black surface soil and subsoil, to lay a drain of tile along each side, near the edge of the roadbed. This has been found a better location then near the middle of the roadway. The office of the tile is to carry off water brought up from below rather than water sinking in from above. In some localities it is necessary to use three drains—one line of tile beneath the center of the roadway, and one under each ditch at the side. It seems unnatural to put the tile under the side ditches, but this location has been proved best.

When the roadbed is to be graveled or macadamized, the crowning earth foundation should be nicely smoothed and then rolled until quite solid. It is well, in this case, to put the clay subsoil from the ditches onto the surface. When rolled, it makes a hard, smooth surface, almost impervious to water, and over which will flow, off to the ditches at the sides, the rain water that may sink through the gravel or macadam. When the surface is to be of earth only, the clay subsoil should be kept underneath, and the natural soil be placed on top. The surface soil will usually afford much better drainage than the subsoils, and make a better road surface.—John M. Stahl, in *American Agriculturist*.

A correspondent of the *New England Farmer* writes: "I have a wife and nine children out on the farm, but have been deluded into going into business in the city. I am going to get back on the farm as soon as I can, away from the noise and bustle of the city, where good, refreshing sleep, pure air, good spring water, and good, fresh products of the land can be obtained. I believe in making prominent the bright side of farm life."

BULLS FOR SALE.

The College has a few fine Shorthorn bulls which will be sold reasonably. Also a Hereford and a Holstein-Friesian bull. They are all animals of much individual merit and of the best breeding. They can be sold cheaper now than in the Spring. Professor Georgeson will answer all inquiries concerning them.

Is your barn paying a proper interest on the money that it cost, or have you ever thought of it in this way? Well, it should do so, and will, if you use it to protect all crops from the weather, to shelter the cattle from the cold, and to keep the manure from wasting till it can be applied to the land.

Given two farmers with equal mental and physical attainments, and each with a capital proportioned to the number of acres which he cultivates, and the man with the small farm gets more comfort and satisfaction from his work, and quite as much net profit as the one with the larger farm.

MANHATTAN ADVERTISEMENTS.

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R. ELIABLE Boots, Shoes, and Rubbers, direct from the leading eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

LESL E. H. SMITH.

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S. HULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

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THE INDUSTRIALIST.

VOLUME

MANHATTAN, KANSAS, SATURDAY, OCTOBER 29, 1892.

NUMBER 10

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific, practical, concerning the different departments of study, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work, studies, examinations, grades, boarding-places, etc., may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

THE INDUSTRIAL LIFE OF THE ANGLO-SAXONS.

BY PROF. FRANCIS H. WHITE.

IN order to get a starting point for tracing the development of English industrial life, it is not necessary to commence with Celtic Britain before the advent of the Romans, nor even with the period of Roman occupation, though it lasted nearly four hundred years and brought about a considerable civilization. The Anglo-Saxon conquest, which followed the withdrawal of the Roman troops from Britain, was so thoroughly done that the people, language, institutions, religion, of England were completely changed. A new civilization commences in the fifth century, and it is the industrial features of this we are to trace.

From several authorities—especially Green's "Making of England" and Kemble's "The Saxons in England"—we condense the following facts which will be used as the basis of a few observations. Although the invaders belonged to three different Teutonic tribes—the Angles, the Saxons, and the Jutes—they resembled each other so closely in every way that this general description is applicable to all.

Anglo-Saxon society was divided into two classes—the free and the unfree. The first had a share in the common land and the corporate life of the community, and comprised two orders of men, the earl, or noble, and the ceorl, or common freeman. Two orders were also found among the unfree, the laet and the slave. The former had no share in the common possessions and no voice in the assemblies that met to consult for the common good. He rented his land from a freeman who then became his lord and had the right to demand from him certain services in peace and aid in war. The slaves seemed to have no rights their masters were bound to respect. No court of justice gave to them protection, and if they fled the punishment might be flogging to death, or, for a woman, burning. The master's lash enforced obedience.

The farm houses were not widely separated, but clustered together into villages around which were defensive mounds and ditches. Just outside of the mounds lay the individual holdings of land, and beyond was the common woodland and pasture.

The chief occupations of the Anglo-Saxons were farming, fishing, and fighting, and in each of these, especially the last, they were undoubtedly successful. Some metal working was done, and the armor-smith was held in high esteem. Judging from their ornaments, the decorations that appear on helmets and shields, the curiously twisted glass goblets, and some of their articles of dress, we conclude they had skill and taste, though we are forced to wonder why more progress had not been made in pottery. We look in vain for anything on which a prediction might have been based as to England's manufacturing future.

Turning now to their farm life, we notice the woman does nearly all the inner work and considerable of the outer. Her duties comprise milking, shearing, cheese-making, flax-beating, wool-combing, weaving, and general housework. The man of the house or his serfs and slaves, if he is rich enough to have any, are at no loss for employment. Owing to the distance of the house from the land he is cultivating or using for pasture, the work is made doubly difficult and laborious. Then, too, he must aid in repairing the mound and ditch, in erecting fences when the new allotments are made, and always hold himself in readiness to march out for defense or attack.

The free spirit of the Teuton displayed itself

in many ways in their early history, but in none more strikingly than in hatred of the city and love for the country. Tacitus, writing of them in the second century, says: "It is well enough known that none of the German populations dwell in the cities; say, that they will not suffer continuous building, and house joined to house. They live apart, each by himself, as the woodside, the plain, or the fresh spring attracted him." But while this intense love of freedom acted strongly as a repulsive force to drive them away from their fellows, stronger attractive forces—the social instinct and the obvious advantages that spring from association, drew them irresistibly together. This process may have been as follows: A freedom-loving pioneer pushes out into the waste accompanied only by his family, and begins to clear land and build the necessary shelters, exulting no doubt that he is "monarch of all he surveys." But just in proportion as his life becomes more comfortable he begins to long for the companionship of other men; others, too, hearing of his prosperity, desire to share in it; and this they will strive to do either by force or bargain. If the first is attempted, he may find it necessary to grant a portion of his domain to certain ones who will agree to aid him in defending their common possessions.

Priority of occupation and superiority of fortune are sufficient to account for his descendants being regarded as of a different order of men—as nobles. But the forces are not yet spent. After the community is made up, others, not caring or daring to push out into the waste by themselves, desire to be admitted to the benefits of this village. The members, unwilling to share their common possessions or dispose permanently of their individual holdings, refuse them, and thus they are compelled to rent their land from the freemen and give services and assistance in exchange. Should famine or special misfortune come to laet or freeman, or should he commit crime and be unable to pay his fine, slavery was almost sure to result.

No doubt this is the way in which many of the Teutonic communities of the continent arose, but England was conquered by war bands, and it is probable that villages were organized as soon as the land came into their possession. The advantages arising from living in a community, even though this necessitated being some distance from the farm land, were early recognized by the Germanic peoples. The custom still prevails in Europe; in this country, though there is an evident drift of the population toward the cities, it is but recently that any great efforts have been made to establish farm villages.

The fact that the villages possessed so much common land is apt to give one the impression that their life was essentially communistic. A closer examination, however, will show that it was not very much more so than our American towns and cities of today. Every city of importance, and probably every village, owns a great deal of property, which, of course, belongs to the people. If, for instance, one should add together all the property of the city of New York in parks, buildings, docks, and other things, and to this its share of the State and national property, a surprisingly large sum would result. There might be added, also, the semi-public property of charitable societies and church organizations, for they serve public purposes.

In the early time of which we write, private property in land was in the transition stage; experience had not yet convinced the race that the best use is made of land when permanent possession is given to individuals, the community or na-

tion reserving only enough for purely public purposes. Against this last view a reaction has now set in, and on practical and theoretical grounds it is attacked. Into this discussion, however, our space and subject do not permit us to enter.

A PLEA FOR SENSE ON THE ROAD QUESTION.

BY PROF. J. T. WILLARD.

THE subject of roads is receiving much attention in the papers at present. There is one peculiarity about the articles, however: they seem to be written almost entirely by people who own bicycles, or by those who ride out for pleasure occasionally. The farmers who are represented as so grievously injured by the present bad roads do not seem to say much about it. Even when they learn that a good solid road can be made of crushed stone for a dollar and a quarter per square meter, they don't seem to realize that that is only four thousand dollars or so a mile for a road six and one-half feet wide.

The road question is undoubtedly an important one, but it must be decided by sense rather than sentiment. Before the people can be induced to expend four thousand dollars per square mile, covering the State with a gridiron of stone roads, they must be assured that it will pay not only in the pleasure of somebody else, but in dollars and cents to the man who pays the taxes.

It will not do to say that it is only necessary to have the principal roads so built in order to reap the major part of the benefit. By the self-constituted apostles of good roads themselves, "the size of the load that a farmer can haul to town is limited by the worst places in the road;" hence rock roads would have to be built along all section lines or the short stretch of good road would be of little use in enabling larger loads to be taken.

We are referred to ancient Romans and the modern nations of Europe for examples of what our roads should be. On this point two things, at least, may be said. The old and celebrated roads between principal points were built before the days of railroads. Our country has developed in a modern era; and our unrivaled system of railways are our great roads. Undoubtedly if Europe were to start anew in road-making, far less stone would be broken, but as the roads are already made they are kept in repair at comparatively small expense. The second point is that in the old countries held up as models for us there is a far greater concentration of wealth and population than here, other and more pressing improvements have been made, and labor can be afforded for highways.

Undoubtedly good roads are an advantage, but the money value of them is apt to be over-rated by bicyclists who never have farmed. The principles of the most successful agriculture demand that as little as possible should be removed permanently from the land. To this end all thoughtful farmers endeavor to consume on the farm as nearly as possible all of the crop of hay, fodder, and grain, and market only the condensed products, cattle, hogs, butter, cheese, etc. We see estimates of how much larger loads of corn can be handled on stone roads than on common ones, when the best farmers never haul a load of corn off the place. The grains used for human food are exceptional. They must of course be hauled to a railroad station, but comparatively few instances occur in this State when the wheat-growing portions cannot market the crop because of bad roads.

The writer does not maintain that our system of road-making cannot or ought not to be improved. He only wishes to enter a protest against the flood of talk which is not pertinent because the writers are ignorant of the practical questions of marketing farm products. A farmer might be kept from going to town with eggs to sell or to buy groceries for several days or weeks at a time and still be somewhat loath to put a four-thousand-

dollar road along two sides of his three-thousand-dollar farm.

Poll taxes and other road taxes should be collected in cash. Road districts should be as large as one man with a force of men and teams can take charge of, giving his whole time to it. This man should be a practical engineer who will know the best means for producing the best road that the people of the district can afford. The people can easily make their wishes known through their County Commissioners, and these wishes will undoubtedly be controlled by the answer to the question, "Will it pay?"

MOULDS IN THE KITCHEN.

BY GRACE M. CLARK '92.

MOULDS, looked at from a housekeeper's point of view, are decidedly nasty. But keep the mouldy bread or potato or fruit warm and moist for a few days, till you get a vigorous growth of the nasty stuff, then put it under the microscope, and see the most beautiful garden imaginable. The gray, white, black, green, or pink woolly mass shows itself to be made up of delicate threadlike stems, most of them tangled like roots at the base, some of them erect and bearing fruit, singly or in clusters or balls. The root-like stems are called the mycelium. They serve only as supports for the rest of the plant, and do not collect food for it, as the roots of flower-bearing plants do. The erect stems are called hyphae, and the fruit is spores. These spores, when ripe, make the dusty part of mould.

The gray or black and white mould so commonly seen on old bread is some kind of *Mucor*. Its spores, which are usually black, are borne in little round sacs, called asci. The asci burst when the spores are ripe, scattering them in all directions.

The green mould of cheese, which is sometimes cultivated to improve the flavor and digestibility of that article of food, is *Penicillium glaucum*. Its hyphae and mycelium are white. Its hyphae divide into several branches, something like broom corn, and the spores are borne in chains at the ends of these branches. Hence the name, *Penicillium*, which means brushlike. *P. Glaucom* is also sometimes found in canned fruit, and it will grow on almost anything.

The mould commonly seen on canned fruit, however, is an *Aspergillus*, or *Eurotium*. The spores of the most common species of this mould are bluish green, but other species have olive green, white, or coal black spores. The spores are borne in chains, but the chains radiate from a center, and all are of the same length, so as to make a ball.

A delicate rose-colored mould, rather rarely seen on decaying matter is known by a variety of names, generally by *Trichothecium roseum*. Its hyphae are not erect, like the others, but creeping. Its spores are flat, spatulate, with transverse partitions, and are borne singly.

Besides the spores described, which are produced by the million, as long as the mould is growing vigorously, and which germinate, under favorable conditions, as soon as mature, other spores are produced when the mould has almost done growing. These are called resting spores, because they do not germinate immediately, but rest awhile. They are much larger and not nearly so numerous as the others.

The resting spores of *Aspergillus* are bright yellow, and make, with the old mycelium, the orange and yellow coating on fruit that has been a long time mouldy. These spores are very pretty, having their coats marked off so that they look like a cellular structure.

When moulds grow naturally, that is, on the surface of matter, where they can get plenty of oxygen, they act much like flowering plants. They take up what food they want from the material they grow upon, and that, if the material is a cooked potato, seems to be all of it except the

skin. They require the same food elements that larger plants do, except iron, which they have no use for, having no chlorophyll. But because they have no chlorophyll, they cannot take their food from inorganic matter, but must live as parasites or saprophytes.

Some moulds, among them various kinds of *Mucor* and *Penicillium*, can be made to grow in a liquid if they can get oxygen from it. If there is not enough free oxygen for them, they can take it from oxygen compounds, and when they do this they act as fermenters, like yeast, though in a less degree. This fact, and the fact that moulds were often found growing together with yeast, or appearing in a liquid after yeast had grown there, led many old botanists to think that yeast and mould both grew from the same spores, or that one could develop into the other. Pasteur, who studied fermentation for twenty-two years, proved by careful experiments with pure growths that each fungus reproduced its own kind and no other.

Pasteur said once that he believed moulds would some day be utilized in the manufacture of ammonia from waste organic matter. One can't help wondering whether, if they were once made useful, they would cease to grow where they were not wanted. Beecher said one could get rid of Canada thistles by making them useful.

Mould spores are produced in such quantities, are so easily carried about by breezes, and will live in such a variety of conditions, that they appear in all sorts of unexpected places, and it isn't much wonder that they made people believe in spontaneous generation for so many years.

FRIENDS.

BY MARY LYMAN '94.

FRIEND is a Saxon word. It comes from the participle "freond," meaning to free, to love, to be ready, cheerful, joyous; and allied perhaps to "frolic." We find the meaning expressed very nicely in the Bible verse, "A friend loveth at all times."

Can you count your friends? If so, why is it? Can't you tell? If not, let us investigate. Look at yourself. Are your actions toward those around you the outward expression of a loving soul within? Are your words spoken cheerfully and kindly? Are you seeking to help your associates into higher planes of truth and honesty by your own thoughtfulness? If you conscientiously answer in the affirmative, worthy are you of many friends of the highest type. True friends are those who seek each other's good, giving help in the most and best possible ways. Perhaps one of your friends has some fault that mars his attractiveness. If spoken to about it, not sharply, but kindly, he would give, perhaps, in place of the haughty looks and stinging words, pleasant smiles and kind answers.

The first law of friendship is sincerity. It is an attachment to a person as the result of intimate acquaintance. This may be caused by one person being "favorably impressed" by some good quality or special faculty in the mind of the acquaintance. True friendship is a noble and virtuous attachment, springing from a pure source. Its principal feature is fidelity, which is so much needed in bringing "grandeur of character and glorious results." False friendship may exist between such persons as robbers and murderers; but in almost every case it proves to be only temporary, caused by joint interest, and may change in a moment to enmity.

"Greater love hath no man than this, that he lay down his life for his friends." We may not be required to make such a sacrifice, but there are many little things that are very tedious; in these are our true selves tested.

Who can we take as our model friend? Oh, how impossible it would be for an unskilled artist to paint a beautiful picture, or an awkward, unhandy carpenter to make an ideal cottage; equally so far is to attempt to live a life without some conception of an ideal friend, whoever it may be. By this I don't wish to intimate that you are to be dependent upon those around you, thus making them responsible for your actions, but be enterprising, be original, be a model in yourself, having, I hope, as your typical example your Divine Friend, for in him was found no spot or blemish.

CALENDAR.

1892-93.
Fall Term—September 15th to December 23rd.
Winter Term—January 8th to March 31st.
Spring Term—April 3rd to June 14th.
June 14th, Commencement.
1893-94.
Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold *at par* or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Iron supports for greenhouse benches are being made in the shops.

Some of the wheat sown about two months ago is just appearing above ground.

The liberal use of macadam improves the barnyard of the Horticultural Department.

The Farm Department has sold six head of Poland China pigs to Mr. Vail, of Manhattan.

The foundation walls are in place for three new propagating pits, 12x85 feet in dimensions.

Bulletin No. 34, "Experiments in Feeding Steers," is in type, and will make at least fifty pages.

The cadets, having completed the close order drills, are engaged with the extended order drills and dress parade.

The whole body of students find their places daily without friction in eighty different classes, under twenty-seven different officers.

Many of the photographs of College buildings and grounds made by Mr. Hoop during the past two months are finished and samples are now on exhibition.

The wearers of artificial sunflowers are recognized as Fourth-years, the class having adopted the brown and yellow of *Helianthus* as their colors.

Mrs. House is slowly gaining health after a serious surgical operation, under the care of Dr. Lyman. Dr. M. B. Ward of Topeka, was the surgeon.

Messrs. Albert and George Conway, of Philadelphia, visited the College on Tuesday during class hours with their relatives, Capt. and Mrs. Bolton and daughter.

Persons desiring a copy of the "College Symposium" can secure one of the few remaining copies by addressing H. W. Avery, Wakefield, Kansas. Price, \$1.25, postage paid.

Examinations yesterday tested the ability and the nervous energy of all classes. Some few are finding that, in studies, half a loaf is scarcely better than no bread. One must have seventy per cent to "pass."

The Horticultural Department has just finished digging the second crop of potatoes, planted July 30th, with seed dug from the 18th to the 30th of the same month, the seed of this crop having been planted April 7th. The second planting produced fairly well, and in quality the tubers are far superior to those of the first planting, being quite smooth, of good size, and free from rot.

Thirty of the delegates to the District Convention of the Ancient Order of United Workmen, held in Manhattan Wednesday and Thursday, visited the College Wednesday afternoon in the company of Mr. McCord, Dr. Crise, and others. The gentlemen spent an hour in a brief inspection of the buildings, and regretted that the time at their disposal was all too short to do them justice.

Prof. Willard, of this College, and Prof. Williston, of the State University, are joint owners in a meteorite which is supposed to have fallen about twelve years ago in Phillips county, two miles from the Nebraska line. The specimen is on exhibition in the Chemical Laboratory. It weighs 1250 pounds, and while its exact composition has not yet been determined, it is considered a valuable "find."

The second division of the Third-year Class appeared in chapel yesterday afternoon in the following programme of declamations: "The Drama of Life," E. A. Donaven; "Intelligence Necessary to National Security," Elsie E. Crump; "The Mercantile and Martial Spirit in History," J. W.

Evans; "Advantages and Disadvantages of Science," Alverta M. Cress; "Correctors and Objectors," Geo. Forsyth; "A Country School," Fannie J. Cress; "Our Debt to Noah Webster," E. L. Frowe; "Cruelty to Animals," W. Harling.

The Scientific Club met last evening and elected officers for the current year as follows: President, Prof. J. T. Willard; Vice President, Minnie Reed; Secretary, Marie Senn; Treasurer, C. H. Thompson. The proceedings will be published next week.

In the effort to secure a photograph of the whole body of students on Wednesday a portion of the temporary staging erected for the purpose gave way. Fortunately no injuries more serious than bruises resulted. A staging abundantly strong has replaced the weak one, and the picture will be taken on Monday morning.

GRADUATES AND STUDENTS.

P. S. Creager, '92, came up from Topeka Saturday last on a brief visit.

Myrtle Harrington, '91, is teaching in District No. 21, Geary county.

F. C. Holcomb, First-year in 1889-90, is telegraph operator at Scott City.

N. S. Welton, student in 1882-4, writes from Emporia for grades earned while here.

H. W. Avery, '92, made a short call at College on Saturday last. He is on the farm at Wakefield.

Geo. E. Hopper, '85, finds his time fully occupied with his contracts. He has gained an enviable reputation as a builder.

M. F. Hulett and G. L. Melton, Fourth-years, are delegates to the Young Men's Christian Association, in session at Leavenworth.

R. A. Clark, Second-year in 1891-2, sends the Entomological Department a large number of insect specimens from Sitka, Alaska.

E. C. Thayer, '91, writes from Lawrence that he is much pleased with the facilities afforded at the University for the study of electrical engineering.

E. W. Curtis, Third-year in 1890-91, until recently manager of a creamery at Bixby, Minn., is elected instructor in dairying at the State University of Wisconsin.

W. H. Olin, '89, writes that the Osborne schools observed Columbian Day with fitting ceremonies. Mr. Olin is thinking of "working up" a Farmers' Institute at Osborne this winter.

Bertha McNair, Second-year in 1889-90, is kept from her school in the Tabor Valley District by the serious illness of her mother. Grace Wells, student in 1889-90, is teaching as substitute.

Mr. Geo. F. Thompson, Third-year in 1883-4, and Superintendent of Printing from 1884 to 1887, is at home on a month's vacation. He is well pleased with his work as proof-reader in the Government Printing office at Washington.

B. A. Knox, Second-year in 1889-90, enroute to the National Encampment G. A. R. at Washington, lost his trunk and contents in a wreck, followed by fire, on the Pennsylvania Railroad. The baggage of his father, mother, and aunt was also burned.

J. L. McDowell, '92, left this week for the Blackfoot Reservation in Idaho, to teach blacksmithing in the Indian school. He was accompanied by W. L. Morse, '90, who will teach carpentry in the same school. Their address will be Fort Hall Indian School, Blackfoot, Idaho.

M. V. Hester, Third-year in 1891-2, is teaching the home school at Haviland, Kiowa county. His brother, O. T., First-year in 1888-9, is now in his second year at Penn College, Oskaloosa, Iowa. The two raised 4,000 bushels of wheat the past season on 200 acres of land, and have planted an unusually large acreage this fall.

Lieut. J. G. Harbord, '86, of the Fifth Cavalry, spent a few days with College friends this week on his return from Chicago, where his troop acted as the Vice-President's body guard in the dedicatory exercises of the Columbian Exhibition. It is thought in army circles that the Fifth Cavalry will soon be transferred from Fort Reno to Fort Riley, in which event Lieut. Harbord will probably be often seen at his alma mater, for which he will always entertain a high regard.

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, J. T. Willard; Vice-President, Minnie Reed; Secretary, Marie Senn; Treasurer, C. H. Thompson. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, W. H. Phipps; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halstead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice President, M. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donaven; Treasurer, John Patten; Critic, M. F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell, D. S. La-Schelle, J. A. Scheel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

October 22nd.

Pres. Abbott called the Hamilton Society to order at 7:30, and roll-call showed that most of the members were present. G. L. Melton led in devotion. Several persons were initiated. W. O. Peterson delivered a declamation entitled "Discovery of America." J. D. Riddell's essay was a description of a wolf-hunt in the early days. In proving his side of the question, "Is mortgaging more of a detriment than a benefit to the farmers?" H. L. Pellet said that loans on the land, together with interest on mortgage, often took more than the land could furnish. C. J. Peterson explains different kinds of mortgages and cites cases where people have obtained farms by means of mortgaging; he also gave some statistics to prove his side of the question. C. A. Chandler said people often mortgage their farms when they might get along without doing so, and this is often the means of losing the farm. C. F. Doan, in favor of the negative, said farmers could obtain money at a lower rate of interest on a mortgage than in any other way. Judges C. D. Adams, J. J. Johnson, and C. Snyder decided in favor of the affirmative. B. W. Conrad, music committee, secured the services of a quartette, who furnished the music for the evening. J. A. Rokes presented the Recorder. Messrs. G. V. Johnson, P. S. Creager, and H. W. Avery, of the Class of '91, spoke of the development of the Society, and compared its present condition with that of former days. Adjournment. I. J.

October 22nd.

At 7:30 the Webster Society was called to order with Pres. Dickens in chair. After roll-call Mr. Stewart led in prayer. Messrs. R. E. Grimes and H. Rhodes were elected members. E. R. Farwell was initiated. Under debate, the advisability of introducing dancing into our College socials was discussed. Mr. McCrea spoke of the many accomplishments attendant upon dancing, and thought it would be beneficial to the College students. Mr. Hulett argued that the present social was a brilliant success, and illustrated his statement by referring to the occasion of last night. He therefore thought it needed no improvement. Mr. Creager spoke of the abuse commonly urged against dancing as dying out, that all foolish prejudice must eventually succumb, and we would be taking a step in advance were we to introduce dancing into our socials. F. J. Smith spoke of the evils common with dancing. The Society decided the question in favor of the affirmative. Society next listened to an organ solo by Mr. Peck. Mr. Forsyth then gave a reading, and Mr. Ginter delivered a very good declamation. J. W. Evans next read an essay, after which the Society took ten minutes recess. Music, by the quartette, Messrs. Patten, Ames, Shoup, and Hulett. W. H. Stewart then led a discussion on capital punishment. C. F. Pfuetze's discussion on the opening of the World's Fair on Sundays brought out several talks from other members. Ex-Webster's Creager and Avery addressed the Society. After report of Critic, the Society adjourned. E. A. D.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Cooper Institute, at Sterling, intends to issue its quarterly *Courier* as a monthly after this.

Five graduates of the State Normal School are candidates for county superintendent this year.

Butler University, Indiana, has conferred the degree of A. M. upon Professor Kelly of the State Normal School at Emporia.

Mr. J. C. Davis, Republican Candidate for State Superintendent of Public Instruction, was a visitor at the College on Thursday afternoon.

The Rice County Teachers' Association held a well attended meeting at Lyons, October 8th. Chancellor Snow, of the State University, delivered an address on "Bacteria."

The State Normal School at Emporia has added voluntary military exercises to its course of instruction. The battalion at present numbers about forty members. Professor Stevenson is the commander.

Last month the Hiawatha schools showed an average attendance of 96 per cent, and only 144 cases of tardiness, with an average attendance of 620. One of the rooms did not have a single case of tardiness.

Eighty-seven animals, representing the mammiferous animals of the Rocky mountains and prairies, have been prepared by Professor Dyche, of the State University for exhibition in the State building at the Columbian World's Fair.

The new "center rush" of Baker University is expected to redeem the honor of the institution upon the field of foot athletics. He is reported to weigh two hundred and fifteen pounds. If he represents the triumph of matter over mind, Baker is all right.

Wednesday, Thursday, and Friday of last week occurred the quarter-centennial meeting of the Kansas Academy of Science, at Atchison. Over thirty-five papers were presented, and the meeting was well attended. An account of the lectures and papers by members of this College were given last week. The following are some of the subjects presented and discussed: Prof. E. B. Knerr of Midland College, read an interesting paper on a variety of Virginia Creeper, *Ampelopsis quinquefolia*. Mr. B. B. Smyth of Topeka, presented some additions to the Kansas Flora. His new catalogue, just published, contains a list of 1794 flowering plants. This is the most complete list published, and it is probable that but few additions will be made. Among extremely interesting discussions was that of Dr. Williston on the "Food Habits of the Plesiosaurus," showing that the reptile carries in his stomach a number of pebbles, to aid in digestion. Officers elected for the ensuing year: President, E. H. S. Bailey, Lawrence; first vice president, J. T. Willard, Manhattan; second vice president, E. B. Knerr, Atchison; secretary, A. M. Collett, Emporia; librarian, B. B. Smyth, Topeka; curators of museum, A. H. Thompson, B. B. Smyth, Chas. S. Prosser. The Academy meets next year at Emporia.

PRESERVING POSTS.

The practice of the following method is said to greatly increase the durability of fence posts, hop poles, and grape posts: A pit is made of convenient size and depth, and poles or posts are set upright in it. Lime is thrown in among the timber, and when this pit is filled water is poured on the lime, which is slackened, and of course generates heat, by which the water and air in the timber are forced out, and as the timber cools afterwards the lime water is absorbed into the pores of the wood. The lime has the effect of decomposing the albumen of the wood, and thus prevents its decay, to which the rotting of the timber is chiefly due.—*Vick's Monthly Magazine*.

This is the season to get everything in shape for winter. See that the tools are all under shelter, the loose shingles on the roofs all tacked down, the cracks in the cow shed all battened, the tired gates restored to their proper balance, the hay stacks well weighed down, the yards and corrals cleaned out, the feed racks fitted up for use, and all of the other thousand and one things which should be attended to before winter sets in. It will soon be corn husking time, and things left undone when corn husking begins seem to have a faculty of being left undone all winter.—*Topeka Capital*.

DON'TS FOR FARMERS.

Mr. E. S. Teagarden of Boone, Iowa, contributes the following sensible "don'ts" to the *Nebraska Farmer*: Don't stop until all the ground has been plowed that can be—it will save time next spring when you will be "rushed" and will be compelled to economize time. And, besides the soil will be increasing in fertility, and especially so if oats or rye is sowed to protect the soil.

Don't fail to select and gather a good lot of seed corn. Take great care to get the best ears: hang up by the husk in a dry, airy place, protected from the sun and rains, entirely away from any influence by dampness or heat. If not perfectly dry when freezing comes, take it and put away where it will not freeze until dried out completely. Seed well kept will possess vigor and will shoot up a strong stalk and bring a good crop.

Don't neglect saving seed potatoes when you dig the crop. Select the very best—those of the largest size, smooth and well formed. To make a finer selection, look out for hills that have but one stalk—these are sure to be larger and better for seed than those that have several stalks. This "stands to reason." Keep the seed in separate boxes or barrels, separate from others, in a dry cellar kept well ventilated through the winter.

Don't let the stock shelter behind the wire fence this coming winter; it is hard on the fence. Prepare a shelter for them and they will bless you in more ways than one. If nothing better, sink posts into the ground, place poles on top, and cover with straw and slough hay; pile straw on west and north sides. Make a shelter somehow—anyhow, and don't make yourself far worse than a beast by neglecting it.

Don't leave the farm implements out exposed to the weather; it will injure them far more than the entire season's use; if nothing better, pile them up and cover with straw topping off with some rough hay, or even weeds. No doubt they are plenty. How nice it is to hitch the teams to the plows and harrows and other implements having them in good order for work. It pays to take care of the implements: they in turn will help to take care of you and yours.

FARMERS' EDUCATION.

Farmers are learning that a liberal education is as necessary to a farmer as it is to a lawyer. A good all round education enables him to do all things well and many things much better than does his neighbor, but the fact that he has a general education should not hinder him from acquiring a special one. If farming is the special education he receives, he should do his best to make his vocation an honorable and successful one. Every farmer should have a specialty to which he can turn for pleasure and instruction when tired of the general work of the farm. If it be stock raising, fruit growing, grain production, experiments with grasses, vegetables or flowers, the culture of bees or the raising of fowls, he should bear in mind that his efforts are not for his own self-gratification merely, but landmarks for the guidance of others. Experiments should be carefully considered and all facts taken into consideration before giving them to others. If satisfactory results are reached, it is churlish to keep them to himself. A general education is a grand thing, but it is the specialist that is moving the entire scientific world today.—*Orange Judd Farmer*.

A NEW EARLY GRAPE.

A new variety of grape has been brought out in Ohio, and it is claimed to be the earliest black variety known, being ten days to two weeks earlier than Moore's Early. The following description is given of it: Bunch large, compact, and shouldered; berry medium, covered with a heavy bloom, and perfectly healthy. Fully as hardy, or more so, than the Concord. A vigorous grower, very productive, and of good quality. Berry adheres firmly to stem. One of the best shippers.

The originator is Mr. R. A. Hunt of Euclid, Ohio. The principal disseminator of it is the C. S. Curtice Co., of Portland, N. Y., and it is also offered by Wm. S. Little Co., of this city. This new variety is called the Early Ohio.—*Vick's Monthly Magazine*.

In a recent trip through the country we noticed that about one-third of all the farm machinery in sight was without any shelter whatever. That is just about the proportion of men that think farming does not pay. Can there possibly be any connection?—*Topeka Capital*.

BULLS FOR SALE.

The College has a few fine Shorthorn bulls which will be sold reasonably. Also a Hereford and a Holstein-Friesian bull. They are all animals of much individual merit and of the best breeding. They can be sold cheaper now than in the Spring. Professor Georgeson will answer all inquiries concerning them.

Some day breeders will begin to train fast walkers as well as fast trotters. No matter where the horse is to be used—on the road, the farm, or in city work—about the most valuable single quality it can have is to be a fast walker. It can then accomplish the maximum amount of work, day after day, with the minimum fatigue. Look to this point when you are buying.—*Turf, Field, and Farm*.

Many branches of agriculture in this country are overdone in the matter of producing poor goods. The dairy business is an example of this sort. But have you ever known a strictly fine butter to want for a purchaser at a good price?

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

FOXB'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. LOFINCK deals in new and second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

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A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

DR. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural teeth a Specialty.

PHOTOGRAPHS.

DEWEY, the photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue.

BOOTS AND SHOES.

RELIABLE Boots, Shoes, and Rubbers, direct from the leading eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

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LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

SHULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

SHAVING PARLOR.

BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

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THE SPOT CASH STORE is Headquarters for Dry Goods, Novelties, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

E. B. PURCELL, owner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, NOVEMBER 5, 1892.

NUMBER 11.

THE INDUSTRIALIST.

PUBLISHED WEEKLY.

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

WESTERN KANSAS.

BY SECRETARY I. D. GRAHAM.

ADMITTING, for the sake of argument, that all the adverse stories which have found circulation concerning that section of the boundless plains which is included within the limits of Western Kansas are true, is this not still a country of almost untried possibilities? The attempt, made by speculators during the "boom period," to build great cities upon these plains and equip them with water works, electric lights, and street cars, before there was a city population to occupy them, has proved a failure. The attempt, by the farmers of that section, to raise the crops and continue the methods of the low-lying eastern States whence they came has not been perfectly successful, and the many attempts to irrigate without water have not yet reached a successful conclusion. The attempt, by many, to "hold down" claims in this new country without the necessary means has been productive of experience, chiefly, while the unequal struggle against inexperience, untried conditions, and debt has resulted disastrously in many cases. Yet the statements of the disappointed "boomer," the disgusted speculator, or the unfortunate settler must not be accepted as telling the whole story of Western Kansas and her possibilities.

With her wonderfully rich soil, her sunny skies, and her delightful climate, Western Kansas was evidently not created for the sole purpose of lying out of doors, and those farmers and business men who have so far triumphed over adverse circumstances as to be able to remain there and continue their business are fast learning some of the things she can be made to do.

Corn growing is uncertain; cattle raising, without range or shelter and feed, is unremunerative; but the small grains have here found a home which seems especially congenial, and they are rapidly making of this region one of the best agricultural sections of the great West.

In that section with which the writer is most familiar, the middle West, wheat growing has been a successful and rapidly increasing business for five years past. Prior to this time he cannot testify from personal knowledge. Mortgages are being paid off or renewed at lower rates of interest. Land is being purchased by residents with an apparent greed, which is difficult to understand by one not familiar with the facts in the case. Merchants are doing an increasing cash business, and the banks show satisfactory deposits. Prosperity seems to dawn upon this region, and many former residents are returning, while others are investing in land with a view to a share in the profits of the immense wheat and barley crops here raised. Houses are taking the place of the sod shanties once so common, and dealers in farm implements report a thriving trade. School district and other bonds are being paid at maturity, and some of them before, and evidence seems to accumulate to prove that this great plains region is rapidly becoming in reality what it was once called in advertisements—a garden spot of the world.

Born amid turmoil and nurtured amid adversity, Kansas has rapidly grown to a commanding position among the States, but it is the eastern half of the State which has claimed the bulk of the credit therefor. This can no longer be true. The State is not nearly done growing, and, as the wealth and population increase with the development of her cities, her manufactures and her mining industries, so will the demand upon the food producers increase until more land will be brought under cultivation, and more of this cultivated land be really farmed than heretofore.

At present wheat raising in Western Kansas is undoubtedly profitable, and it is the writer's opinion that in no section of this country can this crop be raised more cheaply.

HOUSE HEATING. I.

BY PROF. O. P. HOOD.

A SERIES of articles on this subject is proposed, to cover in four papers in a semi-technical manner the principal methods of domestic heating that have been and are now in use. A short history of methods will first be given, then a discussion of grates and stoves, hot-water heating, steam heating, and miscellaneous methods. Until comparatively recently the crudest of methods and the most unsatisfactory of results have contented the generations of all countries, savage and civilized. A bonfire was undoubtedly the earliest of warming devices, and was early transferred to the savage shelter. The only contrivance to aid the natural combustion of the fire once started was the deft arrangement of fagots as they were added by a hand taught by slowly acquired experience. Any device for the carrying off of smoke was a matter of convenience for the inmates, and in no way aided combustion. The arrangement of fagots was to the end of allowing certain parts of the fuel to retain a high temperature and only come in contact with a necessary quantity of air which had first been considerably heated by radiation. Various refinements of this simple bonfire have been found among every progressive people. It must be remembered that chimneys were an unused device until the middle of the 14th century. The Romans used portable furnaces containing embers and burning coals to warm the different apartments, which were placed in the middle of the room. The usual kind were elegant bronze tripods supported by satyrs and sphinxes, with a round dish above for the fire, and a small vase below to hold perfumes which were thrown into the fire to correct the smell of the coals. The smoke from these stoves was so considerable that the furniture of the winter rooms was different from the summer rooms, and Vitruvius, in discussing the architecture of that time, expressly states that their winter apartments had plain cornices and were without carved work or mouldings in order to allow the soot to be easily and frequently cleaned away. The smoke issuing from the kitchen windows was so great on the occasion of a great entertainment that it was common to speak of this great smoke as synonymous with a great entertainment.

In A. D. 64 another method was much adopted. Pipes were built into the walls, ending in the room to be heated, the upper end often ornamented and capable of being closed. The heat from the fire was taken direct through these flues. They soon filled with soot and frequently burnt out, taking the house with it occasionally. The Romans had previously, however, had elaborate heating devices for their public baths, but the method was such an extravagant one as to limit its use to the extremely wealthy. This method usually consisted in building the floor of the room to be heated upon stone arches, and building a big fire in the room below under these arches. Many eastern methods are similar to the Persian. A fire started in an iron pot sunk in the center of the floor is allowed to burn to coals. It is then covered with a wooden cover and a big blanket. Various degrees of keeping warm are obtained by crawling more or less completely under the blanket.

Among the early Britons, a fire built in a hole

in the center of the floor, with a part of the smoke escaping from a hole in the ceiling, was the only method known. The most important forward step in domestic heating was the use of the chimney, which began about 1347. Rome did not know of their use even twenty years later. It was not until the reign of Elizabeth in England that most rooms in the better houses were furnished with chimneys; and apologies were made to visitors if they could not be accommodated with rooms with chimneys. Coal was not tolerated as a fuel until the 17th century; then began the improvement of grates and stoves. Between 1615 and 1750 a number of good investigators considered this problem of heating by grates and stoves. A dozen or more writers wrote books on the subject, and a general improvement of methods was soon noticed. Probably the two names in the list most readily recognized are those of Count of Rumford and Benjamin Franklin. Franklin was the inventor of a number of stoves, and did much to spread the knowledge of a reasonable construction for open fire-places which were the principal means used in his time. Open fire-places are no longer practical heaters if their actual heating efficiency is to be considered. The improvements suggested at that time consisted in so arranging the side walls and back of the fire-place that the radiation from these surfaces should be directed more uniformly over the room. It was pointed out in 1713 that the worst possible form was where the two sides were parallel and reflected the heat back and forth between themselves only.

M. Gauger recommended that the two sides of the grate make an angle of 90° with each other, and equal angles with the front of the grate. The length of the back of the grate should be one-third the length of the front. This author also advised a considerable reduction in the size of the breast of the chimney, which advice has been generally followed. The matter of inclining the sides is still good advice, but is seldom followed. At this early date it was advised to make the back, sides, and hearth of the grate hollow by means of metal plates separated a few inches apart, these hollow spaces to communicate with the outside air; the air passing through them being warmed before entering the room. This also prevents in some degree the cold drafts coming from around windows, doors, etc., to supply the large quantity of air used by an open grate. A number of modern forms embrace this suggestion, and they are more efficient than the usual solid-back grate.

THE PRINCIPLES OF AGRICULTURE FOR COMMON SCHOOLS.

A LITTLE book with the above title has been prepared by Mr. I. O. Winslow to meet a demand frequently expressed in newspapers, and occasionally felt by earnest seekers after knowledge of farming. It probably answers its purpose as well as such an epitome of general principles can, and is marred by as few inaccuracies of statement as any similar book. That it will serve its purpose of instruction in the common schools may, however, be doubted. It is a collection of general statements from standard authorities in chemistry, botany, geology, physiology, physics, and meteorology, with a very few practical applications of such principles. In general, these statements must be taken without illustration or proof and in many instances without means of understanding what they teach. Naturally, the effort to condense such a mass of information into a few pages makes the statements peculiarly bald and uninviting. To an average youth of fifteen, without previous knowledge of the sciences borrowed from, these bald statements have almost no meaning, and the effort to learn and recite them is a mere exercise of memory. To farmers of experience, the book will be of little help, except in furnishing a few tables of relative values of feeds, and a

few suggestions as to tillage. I cannot see any probability that it will meet the want of a text book for the common schools.

The fact is that any teaching of agriculture in the common schools should proceed from things and rules already familiar, and principles already established, and should lead pupils, even at an early age, to look at the things they handle every day, with some idea of finding out how nature acts. The general principles can then be given as a summary of experience. The general statement as to vegetable growth, for instance, is worth something to one who has seen it illustrated by actual examples of growing plants. The whys and wherefores of ordinary practice in farming may be understood only after a considerable acquaintance with effects of the practice. General directions founded upon principles may be multiplied to advantage if they are clearly expressed and illustrated by the simplest of examples. I believe problems in agriculture might be proposed to the advantage of students, the rules and data for solution being given as in other sciences. Of course, any book for developing agricultural knowledge among common school pupils should have, first and foremost, the idea interesting to them, and should teach observation in the clearest possible manner. An effort to teach agriculture by simple condensation of knowledge into a few pages, is likely to be as successful as would be the teaching of medicine in a similar volume.

The chief obstacle to teaching agriculture in common schools is the want of teachers themselves interested in the subject. The admirable young men and young women who manage the country schools cannot be prepared for such teaching without a longer course of study than many of them receive. Of those who do receive such training, few have the tact to use well the everyday materials for illustration and observation. The same difficulty appears in the teaching of most of the arts of life. Any successful teaching in this line is truly elementary in subject-matter and method. Elementary practice is the foundation of all accurate knowledge in arts of every kind. Agriculture can be no exception to this rule.—*Pres. George T. Fairchild, in Educational Review.*

NUTS FOR KANSAS.

As the Autumn approaches, one begins to think of the delicious shell barks, the splendid brown chestnuts, and the oily walnuts. There are plenty of the latter, but one searches long for either of the other nuts in Kansas. There are few of nut-bearing trees that do not readily adapt themselves to our soil and climate. Along the Marias des Cygne river the pecan is said to grow wild. The tree is very easily reared, and only needs to be planted like ordinary forest trees, with the exception that it must be placed where the tap root can reach water. Chestnut trees ought to take kindly to northern Kansas, and would if given a chance. Every nurseryman sells the young trees—they may be bought for a trifle—and if you can get large ones and top them they will soon reward you by bearing an abundance of delicious nuts. There are hundreds of hickory trees in the grove about my house. The ground is covered with nuts each Autumn; but they are small and bitter. It is to be hoped that farmers when making new homes and improving old ones will do away with the tiresome Lombardy poplar and plant in its stead a fruit-yielding chestnut, hickory, walnut, or butternut tree.—*Correspondent Orange Judd Farmer.*

Secretary Rusk says that in 1880 our 5,000,000 farms were worth \$10,000,000,000, and produced crops to the amount \$4,000,000,000, having stock on them worth \$1,500,000,000. By statistics at the department now, the stock is worth nearly twice the amount. Better beef is sold now at two years old than then at four years old, thus doubling the productive capacity as it has been or may be doubled in many other products.

THE SCIENTIFIC CLUB.

October 28th.

The Scientific Club and a large number of visitors were called to order by Pres. Mason. The minutes of the previous meeting were read and adopted. The Club next proceeded to the election of officers, which had been postponed at the last meeting. The Secretary was instructed to cast a ballot for the following persons:—

President, J. T. Willard.

Vice-President, Minnie Reed.

Secretary, Marie B. Senn.

Treasurer, C. H. Thompson.

On leaving the chair, Pres. Mason made a few remarks on the year that had passed, closing with a cordial invitation for advanced and new students to become members of the Club.

Mr. Carleton presented to the Club some facts regarding interesting Western plants. Specimens of the plants discussed were passed for inspection. Two species were referred to especially: one, a species of Baccharis (*Baccharis salicina*, *T.* and *G.*), is the only distinct composite shrub so far found in Kansas. It is willow like in appearance, as its name implies (from the word *salix*, meaning willow), and the flower heads are small yellow; found from Garden City westward to Colorado line, but reported by others as far east as Butler County. In this connection, a specimen of *Baccharis Wrightii*, *Gr.*, was shown, collected by Minnie Reed in Greeley County, Kan., interesting because belonging to the same genus, and being the first reported specimen of that species from this State. The discovery of another species, the Buffalo Berry (*Shepherdia argentea*, *Nutt.*), at Garden City, on an island in the middle of the Arkansas River, is still more important, as this extends the range of that species, now, for the first time, east of the Rocky Mountains and south of the Kansas-Nebraska line. Specimens of the sprouts only were obtained, since the parent trees had been cut down, leaving stumps from five to eight inches in diameter. No fruit was obtained, but the berries are known to be scarlet in color, and said to be edible, having an acid taste. Professors Mason and Willard took part in the discussion, adding notes of much interest, especially concerning the production of free nitrogen, by bacteria, in the root nodules of a genus (*Eleagnus*) allied to *Shepherdia*.

The subject of meteorites was next opened by Prof. Failyer. He spoke of the phenomena that are observed in their fall, of attempts to classify them, of their position in space, their motion, and the cause of the heat and the light. Some noted meteoric displays were mentioned, as well as some of the principal meteoric stones known. Mr. Willard exhibited the meteorite recently obtained by Prof. Williston, of the State University, and himself in Paillips County, Kansas. It is an unusually large one, weighing twelve hundred and fifty pounds. It is of the stony variety, containing, however, a large percentage of the nickel-iron alloy peculiar to meteorites. It is said to have fallen about twelve years ago. It was considerably shattered in striking, there being over three thousand pieces of it. The largest fragment weighs two hundred and sixty-five pounds, and the four largest aggregate six hundred and fifty-eight pounds. The complete analysis of the specimen has not been made yet, but it promises to give interesting results.

A general discussion followed Mr. Willard's remarks, after which the Club adjourned.

MARIE B. SENN, Sec'y.

It is not at all a bad plan to fasten a small box—a soap box will do—to the wagon bed and then to throw into it all of the particularly fine ears which are encountered in husking. Before the husking is done you will have accumulated a sufficient quantity for seed the next season, and a fine lot besides to send to the World's Fair Board either for exhibition or for the decoration of the Kansas building.—*Topeka Capital.*

CALENDAR.

1892 93.
Fall Term—September 15th to December 23rd.
Winter Term—January 8th to March 31st.
Spring Term—April 3rd to June 14th.
June 14th, Commencement.
1893 94.
Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Board meeting Thursday, November 10th.

G. M. Munger, of Eureka, visited his son, of the Second-year classes, this week.

The College apple crop is safely stored in the cellar. It amounts to just five bushels!

Prof. Hitchcock writes in *Science* for October 28th on "The Botanical Library of a Station Botanist."

Three new drawing tables of the Mack & Jones patent have been added to the Department of Industrial Art.

Badges yellow and blue, have been flying in friendly rivalry this week, and all will stand by their colors until after election at least.

The College herd was this week housed in comfortable winter quarters. The cattle are in excellent condition considering the scantiness of the late pasture.

Republican, Democratic, and Populist leaders took advantage of the political gatherings in the city this week to visit the College, in which all of them are interested.

Mr. Coan succeeded, Monday morning, in making a 12x17 inch negative of students and officers. A Faculty picture of the same size was made last week.

The fifty or more varieties of chrysanthemums in the greenhouse are flowering, and will be in full bloom the last of next week, when the show will be worth seeing.

Persons desiring a copy of the "College Symposium" can secure one of the few remaining copies by addressing H. W. Avery, Wakefield, Mass. Price, \$1.25, postage paid.

Miss Josephine Harper, of this College, will read a paper on History and Civil Government, at the semi-annual meeting of the Social Science Club at Topeka, November 17th and 18th.

An advance copy of Bulletin No. 34, "Experiments in Steer-feeding," has been received. It consists of fifty pages of text and four pages of plates. The Bulletin will be ready for distribution in about a week.

Prof. Hood, in a lecture before the students yesterday afternoon, told something of one of the great manufacturing centers of Massachusetts—Lynn. Among other things he gave some of the early history of the town, its wonderful manufacturing growth in late years, and described two of its principal industries—that of shoe-making, and the development of electrical appliances.

SUGAR BEETS IN KANSAS.

The *Kansas Farmer* of this week gives two columns or more to the subject, "Sugar Beets in Kansas," showing how extensive the trials already made in this State have been, and depreciating the action of the Kansas Academy of Science in favoring a special appropriation by the State Legislature for the purpose of conducting experiments in the cultivation of sugar beets. The article is an admirable statement of facts, well known to the readers of the *INDUSTRIALIST* as to the extensive experiments conducted by the College Station in fifty-six counties of the State, and adds: "All Kansans may, however, rest assured that the work is being most thoroughly done, and the question of the production of sugar beets in Kansas will be more nearly answered at the end of the present season." After calling attention to the equipment already in use, it concludes:

"It does not appear that there is any necessity for further appropriations by the State for experimental work of this kind unless indeed it be for such permanent improvement of the general facilities as the laws of Congress do not permit to be made from the government fund.

"It is probable that the resolution of the Acad-

emy of Science was passed without due consideration; for surely the work is being well done with the means otherwise provided, and by experimenters whose capabilities and industry are unsurpassed."

GRADUATES AND STUDENTS.

The students' pay-roll for October amounts to \$901.71.

R. U. Waldraven, '90, has moved to Rulo, Nebraska.

L. A. Waters, Second-year in 1887-8, returns to classes this week.

M. C. Doran, student last year, visited College a few days this week.

Carrie Ipsen, Second-year in 1889-90, is taking medical treatment in Manhattan.

E. B. Bacheller, Fourth-year in 1886, is Principal of the High School in Oakley, Kansas.

Mrs. Boast and Miss Morrow, of Topeka, visited B. and H. L. Coleman the first of the week.

J. W. Ijams, '90, writes from Pine Ridge Agency, South Dakota, ordering the *INDUSTRIALIST*.

Edith Stafford, student last year, visited College friends Thursday, on her way to attend the State Normal at Emporia.

Susan W. Nichols, '89, writes from St. Joseph of performing the duties of a stenographer in the forenoon, and of a music teacher in the afternoon.

R. C. Abell, student in 1886-7, lately Foreman of the State Industrial Farm at Beloit, has been made Superintendent of Grounds and Buildings, and his salary doubled.

D. H. Otis, '92, writes from Washington, D. C., of a pleasant visit in Vermont and New York and pleasant times in Washington, where he expects to spend the winter.

S. B. Johnson, in Third-year classes, is compelled to leave College on account of ill health. He will spend a year or more in southeast Washington, where his brothers live.

J. E. Dorman, Second-year in 1890-1, until lately employed on Vice-President Morton's farm in New York, visits a few days with friends before going to Lehigh City, Utah, where he takes charge of a large dairy farm.

J. B. Thoburn, Third-year in 1891-2, visited with College friends recently, and enriched the mineralogical museum by the addition of a large specimen of crystal quartz picked up by him in "The Fountain," a small stream near Colorado Springs.

W. T. Swingle, '90, writes that he is now stationed at Eustis, Florida, to study the diseases of oranges and other sub-tropical plants. The citizens are building a laboratory, and will furnish experimental grounds and a library, free of charge, making it, as the writer says, "the best equipped for botanical work south of Washington."

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

THE WEATHER FOR OCTOBER.

BY PROF. E. R. NICHOLS.

Temperature.—The mean temperature for October, 1892, was 55.67°, which is 1.41° above normal. There have been thirteen warmer and nineteen cooler Octobers in the past thirty-five years; the extremes being 60.93° in 1886, and 44.05° in 1869. The highest temperature was 93°, on the 1st, and the lowest 23°, on the 25th—a monthly range of 70°. The warmest day was the 16th, the mean being 73°; the coolest, the 25th, the mean being 36.75°. The greatest range for one day was 54°, on the 9th; the least, 5°, on the 20th. The mean of the observations at 7 A. M. was 46.77°; at 2 P. M., 71°; at 9 P. M. 52.45°. The mean of the maximum was 73.45°; of the minimum 43.45°,—the mean of these two being 58.45°. The mean temperature for the first ten days was 60.35°; for the second, 62.4°, and for the last eleven days, 45.3°. The first killing frost of the season occurred on the morning of the 8th.

Barometer.—The mean pressure of the atmosphere for the month was 28.90 inches, which is 0.1 inch above the mean of twenty-one years. The highest pressure was 29.21 inches, at 7 A. M. on the 23rd; the lowest, 28.55 inches, at 2 P. M. on the 11th,—a monthly range of 0.66 inch.

Wind.—The wind was from the south twenty times; northeast, fourteen times; north and southwest, nine times; southeast, six times; west, five times; northwest, four times; east, three times; and a calm twenty-three times. The total run of wind for the month was 7039 miles, giving a mean daily velocity of 227.06 miles, and a mean hourly velocity of 9.46 miles. The highest daily velocity was 729 miles, on the 12th; the lowest, 68 miles, on the 24th. The highest hourly velocity was 41 miles, between 12 M. and 1 P. M. on the 12th.

Rainfall.—The total rainfall was 1.322 inches, which is about 1 inch below normal. Rain fell in measurable quantities on the 12th, 17th, 20th, and 30th. The long drought of September continued practically till the 17th, when a little over an inch of rain fell.

Cloudiness.—There were three days entirely cloudy, one five-sixths cloudy, two two-thirds cloudy, three one-half cloudy, one one-third cloudy, five one-sixth cloudy, and sixteen cloudless. The per cent of cloudiness for the month was 25; for the first ten days 0; for the second, 43; and for the last eleven days, 32.

Below will be found a comparison with the preceding Octobers:—

October.	Number of rains.	Rain in inches.	Prevailing Wind.	Mean Temperature.	Maximum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	6	5.67	...	56.38	92	30	...	...
1859	2	.64	S	53.87	84	28	...	...
1860	1	.42	SW	56.31	91	29	...	...
1861	6	2.12	SW	55.67	84	32	...	...
1862	4	1.62	S	58.98	94	16	...	...
1863	3	2.40	NW	47.80	79	11	...	...
1864	4	.68	NW	45.92	73	25	...	...
1865	3	.43	S	57.53	88	30	...	...
1866	5	.91	E	56.31	92	29	...	...
1868	6	2.51	SW	52.43	79	32	...	...
1869	2	.43	SW	44.05	79	19	28.88	29.20
1870	9	5.06	SW	56.05	78	30	...	...
1871	6	1.20	SW	55.81	91	31	...	...
1872	5	2.76	SW	54.98	91	27	...	...
1873	2	.42	SW	51.23	84	14	28.77	29.10
1874	3	.22	SW	56.15	84	15	28.81	29.18
1875	3	1.04	SW	53.04	88	23	28.78	29.17
1876	3	1.61	SW	53.59	83	21	28.74	29.33
1877	8	9.07	SW	53.18	80	27	28.76	29.06
1878	4	1.06	SW	54.67	89	17	28.74	29.26
1879	4	2.63	S	60.84	86	24	28.70	29.17
1880	6	2.20	SW	52.16	81	23	28.69	28.98
1881	8	4.27	SW	56.54	88	32	28.65	28.96
1882	4	3.54	SW	57.71	83	32	28.62	28.92
1883	12	7.45	E	51.54	87	31	28.68	29.10
1884	6	2.22	S	6.06	83	33	28.57	28.88
1885	4	1.72	NW	50.62	85	20	28.61	28.87
1886	2	2.42	SW	60.93	91	25	29.00	28.49
1887	2	2.20	S	51.00	91	26	29.09	28.54
1888	4	2.74	SW	52.11	82	23	28.90	28.55
1889	3	1.42	E	52.21	96	26	29.12	29.40
1890	4	1.99	N	53.33	86	23	28.87	29.29
1891	4	2.45	SW	53.16	89	22	29.03	29.44
1892	4	1.32	S	55.67	93	23	28.90	29.21
Means	4 5	2.31	SW	54.26	89	25	28.80	29.18

WIND RECORD.

October.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.

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KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

A class in "Volapuk" has been organized in Topeka.

Leavenworth is arranging for a university extension course.

The students of Midland College at Atchison have started a brass band of fourteen instruments.

The Midland College *Monthly* laments that "western students do not appreciate the value of a first class college magazine."

The Government Indian School at Lawrence has an attendance of 572 pupils. Eleven of them recently defeated the State University foot-ball team.

Superintendent Van Dyke, of Abilene, writes as follows: "Please state through your paper that the average salary of male teachers the past year under the County Superintendent's jurisdiction of Dickinson County was \$47.90; female, \$39.90. Please ask in connection whether any county can beat this record."

The successful student must have the object which he seeks clearly before him, and he must give his best thinking to its achievement. No unimportant matters, such as newspapers, college politics, or social visits should ever be permitted to break in upon the study. The time given to these must be only the time devoted to recreation.—*Baker Beacon*.

The W. C. T. U. of Kansas has issued a circular letter to teachers and superintendents asking for assistance in buying a fountain for the Kansas Building of the World's Columbian Exposition. The enterprise is a worthy one, especially since the fountain is to be presented to the State Normal School after the close of the Exposition; but since the schools of the State have failed thus far to raise the \$10,000 needed for the State Educational Exhibit, the money for the fountain will probably not be raised as promptly as might be wished.

Stand up for Kansas! Stand up for principle! The ten thousand dollars required to meet the necessary expenses for placing a creditable exhibit of the work of the schools of the State before the world at the Columbian Exposition are not realizing satisfactorily. It was expected by the State Teachers' Association that it would be an easy matter to raise the amount by voluntary contributions of the pupils and teachers, but while some schools have done their share, and more than their share, others have neglected the matter entirely. The total amount contributed so far is only \$4,445.02. Kansas has a school population of over half a million, and the enrollment of the public schools is about three hundred thousand. If two-thirds of the latter or two-fifths of the former should contribute five cents each, the amount would be there. Stand up!

AVOID PERSONALITIES.

Keep clear of personalities in general conversation. Talk of things, objects, thoughts. The smallest minds occupy themselves with personalities. Personalities must sometimes be talked, because we have to learn and find out men's characteristics for legitimate objects; but it is to be with confidential persons. Do not needlessly report ill of others. There are times when we are compelled to say, "I do not think Bouncer is a true and honest man," but when there is no need to express an opinion, let poor Bouncer swagger away. Others will take his measure, no doubt, and save you the trouble of analyzing him and instructing them. And as far as possible, dwell on the good side of human beings. There are family boards where a constant process of depreciating, assigning motives, and cutting up of character goes forward. They are not pleasant places. One who is healthy does not wish to dine at a dissecting-table. There is evil enough in man, God knows; but it is not the mission of every person to detail or report it all. Keep the air as pure as possible, and fragrant with gentleness and charity.—*John Hall, D. D.*

In every occupation of life it is the man who has thoroughly mastered every detail of his business who gets to the top. Agriculture is no exception to this rule, and the mastery of details embraces not only knowledge of methods, but the reasons for certain procedures, and the causes which lead to effects.

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, J. T. Willard; Vice-President, Minnie Reed; Secretary, Marie Senn; Treasurer, C. H. Thompson. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, W. H. Phipps; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halstead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice-President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donaven; Treasurer, John Patten; Critic, M. F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to members gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell, D. S. LaShelle, J. A. Scheel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Knickerbocker; Vice-President, Elsie Crump; Recording Secretary, Lorena Helder; Corresponding Secretary, Florence Corbett; Treasurer, Ellen Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

October 29th.

President Dickens' sharp rap of the gavel called the Webster Society to order at 7:30 o'clock. After roll call, prayer was offered by Mr. Dean. Under the order of debate, Mr. Trembley was the first speaker on the question as to whether the College should furnish employment for the students or not. He thought that it should not; that as the students don't come here for work of that kind, employment should not be furnished them; and as for those who work part of their way the better way for them to do would be to work out a year and then come to college. Mr. Dean said that the best students are those who work, and where one works and fails in his studies there are many who work and succeed. C. H. Paul argued that it was impossible for a student to work and give the best class results, and further, that the work furnished the students was not the best kind of exercise while going to College. Mr. Peck thought it best to work, as then he found he always got his lessons better. By vote of the Society, the question was decided in favor of the negative. E. A. Donaven then delivered a declamation. T. W. Morse read the regular edition of the Reporter, after which the Society had recess of ten minutes. Under the order of discussion, several of the members gave their opinions on the differences between the Republican and Populist parties. Society listened to music by John Stingsly, committee. After report of Critic and reading of the minutes, the Society adjourned.

E. A. D.

October 29th.

President Abbot called the Hamilton Society to order at the usual hour. D. S. LaShelle led in devotion. H. S. Johnson was elected to membership. Mr. Pool's essay gave a very clear account of raccoon hunting in Missouri. O. A. Otten opened the debate on the question, "Does the People's Party stand up for Kansas better than the Republican Party?" Mr. Otten thought that the People's Party could scarcely do less than the Republican Party has done. He compared the platforms of the two parties and discussed the tariff and the money question. In replying, W. J. Joss told how the People's Party had carried this State two years, and yet we are still waiting for them to do something for Kansas. Their appropriation for educational purposes showed they were not in sympathy with progress along this line. W. E. Hardy spoke of the clause in the People's Party platform which advocates government ownership of railroads and telegraph lines, and he also spoke of the sub-treasury plan. C. S. Pope compared the parties in a general way and gave a description of the money which the People's Party men wish to place in circulation. Judges Sandt, Doane, and Bryant decided in favor of the negative. C. D. Leslie and T. E. Lyon entertained the Society with music. F. Yeoman's select reading dealt with electric force. C. A. Johnson, in a well written oration, told of the development of Kansas. W. H. Painter presented the news of the week. Extemporaneous speaking. Adjournment, 7:30.

I. J.

October 28th.

The Alpha Beta Society came to order at the usual hour with Miss Maude Parker, Vice-President, in the chair. Prayer by Miss Sadie Moore, followed by congregational singing, after which Misses Steele and Jackson were initiated as members. A short oration by Miss Cottrell and an essay on "A Literary in a Country School-house," by A. H. Morgan, preceded the debate on the question, "Resolved, that the present condition of national affairs justifies and demands the organization of the common people." Odle and Ridenour gave reasons for supporting the resolution. Two classes are growing in this nation, the rich, aristocratic speculators on the one hand and on the other are found the laborers, wealth producers, common people. The government has fallen into possession of the rich, and is being run in their interest and to the disadvantage of the people. The money power is organized for the purpose of defeating the will of the people, and organization must meet it in the conflict against wrong. Miss Toothaker and Mr. Kinsey opposed the resolution because "Such an organization would eventually lead to communism. It would lead to a final destruction of all centralization of capital, and thus stop all great enterprises. Our railroads, telegraph lines, steam ships, and factories are but a few results from a centralization of wealth. It would tend to lessen individual effort, and thus be a barrier to progress." There was a tendency on the part of some to treat the question in partisan manner. The Judges, Misses Palmer and Steele, and Mr. Donaven, decided for the affirmative. A very interesting Gleaner was read by E. J. Abell, editor. Its motto was "Have a purpose in life; constantly aspire to its accomplishment." Recess was followed by an organ solo by Miss Steele, and the news report, after which all members took part in extemporaneous speaking.

W. H. P.

BULLS FOR SALE.

The College has a few fine Shorthorn bulls which will be sold reasonably. Also a Hereford and a Holstein-Friesian bull. They are all animals of much individual merit and of the best breeding. They can be sold cheaper now than in the Spring. Professor Georges will answer all inquiries concerning them.

One of the most marked differences in the construction of the buildings of today, as distinguished from those erected a few generations ago, is the increased use and adaptation of glass. For some time transparent glass bricks have been let into the walls to afford light where a window would interfere with the architectural plan. But now it is proposed to cast glass, not necessarily transparent, into large blocks for building. This material is practically indestructible, perfectly non-absorbent, and, therefore, damp-proof in a manner which few bricks are, and in this way coarse glass of this kind could be made as cheap as concrete, stone, or baked clay.—*Industrial World*.

MANHATTAN ADVERTISEMENTS.

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D. EWEY, the photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue.

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THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, NOVEMBER 12, 1892.

NUMBER 12.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

MANAGED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.—may be obtained at the office of the President, or by addressing the Secretary.

Application for Farmers' Institute should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

THE NEW KEYBOARD.

BY PROF. A. B. BROWN.

DURING a recent visit to Kansas City, I called at the music house of Jenkins Bros., on Main Street, and found in their show window a Janko keyboard. This instrument is the only one of the kind in that city, and was the first one sent west by Decker Bros., of New York.

This new keyboard is the invention of Paul von Janko, a Hungarian, a novelty well worth the attention of all who are familiar with the old, flat keyboard, and of especial interest to all who are hoping to make pianists of themselves.

The entire length of the keyboard is about the length of five octaves on the old keyboard. The keys are arranged in six rows, one above the other, like stairs. Each key, when viewed from the side, looks like a stair consisting of three steps, and can therefore be struck on any one of these three keysteps covered with touchplates. The touchplates of the first, third, and fifth row slope in a straight line one above the other, forming one key. Those of the second, fourth, and sixth row the same, giving the next half tone.

The touchplates of the notes F sharp, G sharp, A sharp, C sharp, D sharp, are distinguished by a black stripe, while C, D, E, F, G, A, B, are white. The groups of two and three black touch plates, with their three and four white ones, are easily recognizable at first sight, and are exactly the same as on the old keyboard. The new system has just as many keys as the old, having one lower and one upper set.

To each octave belong six lower and six upper keys. The six lower are C, D, E, F sharp, G sharp, A sharp. The six upper are C sharp, D sharp, F, G, A, and B. When the lower and upper set are struck alternately and consecutively they give the chromatic scale. The touchplates being of the same width and on the same level, renders the execution easy to hands differing in size and form.

The forced and awkward positions of the hands, the wide stretches, difficult or impossible for small hands; the almost endless variety of complicated fingering demanded by the old keyboard, in a large degree disappear with the new, which accommodates itself to the form and size of the hand, and where the octave and most of the chords can be encompassed with the hands in a natural position.

The fingering of this new method is indicated by a dot under the figure for the first two rows, a dot above the figure for the fifth and sixth row, and by the simple figure for the two middle rows.

Whether all the advantages claimed for the new keyboard can be realized, time and experience alone can determine; but surely anything that will lessen the technical labor of piano playing should be welcomed, and we await with interest results at the Janko Conservatory—a school based upon this new system of piano playing.

USE A NOTE BOOK.

BY G. W. SMITH, '93.

IF we could remember everything that comes under our notice, what a conglomeration of facts and ideas and notions the mind would possess. But we cannot, and indeed such a state of mind would be far from desirable: many unpleasant thoughts—thoughts we would be glad to forget—would be constantly crowding themselves upon us to vex us.

The mind can undoubtedly be trained to remember such facts as we wish to remember, and to forget those we wish to forget; but not all persons can give the mind this training, so the only thing left for them to do is to "use a note-book." By this I

do not mean to write down all the detailed facts of the case: in some instances a word is sufficient to give the mind a clew, with which it sets to work, and one by one calls up all the surrounding facts until the whole stands out plainly in the memory. A sentence, striking in itself, or bearing a close relation to that which we wish to recall, will generally bring it back, and sometimes the very act of writing the sentence will impress it upon the memory so that it will not be effaced.

Many of our greatest orators and statesmen are men who have not allowed a good idea to escape them, to be forgotten simply because they have no means of recording it. A note-book, carried in the pocket, is always ready to receive your contributions of thought.

Remember this, and try it. See if the next oration you are required to prepare will not come easier if, while you are thinking of it, you note down all your thoughts upon it.

In your reading in the library and at home, a simple memorandum of the book, page, and location in library will enable you to again find some important subject if you are suddenly called upon to discuss it, or to debate upon it, or if for any other purpose you wish to refer to it.

If the lessons for the coming day were noted down, then would end that poor excuse, "I forgot where the lesson was today."

Enough has been said, I think, to illustrate my point, that a note book of some kind should be in the hand of every student, as a necessary help to his education; for although it hinders the memory in one way, it aids it in another.

THE COLLEGE LIBRARY.

BY PROF. D. E. LANTZ.

THE increase in the number of volumes in our library during the past two years has been greatly limited by the want of available funds for the purchase of books. For the year ending June 30, 1891, the Legislature allowed the small sum of \$1,000, but the last Legislature reduced this to the insignificant sum of \$250 for each of the two years ending June 30, 1892, and June 30, 1893. This amount is hardly enough to pay for the magazines and technical journals actually indispensable to our reading rooms. We ought to spend double this sum for this item of periodicals alone.

In spite of the unfavorable circumstances under which we have been placed, our accession registers of books and pamphlets show an increase of 1912 volumes for the year ending June, 1891, and of 893 volumes for that ending June 30th, 1892. This makes the total inventory of June 30th, last, 16,029 books and pamphlets, valued at about \$19,000. Catalogue, book cases, furniture, and other property of the library make the total inventory \$21,450.70.

A reasonable annual State appropriation for the purchase of books ought to enable us to add, including donations, at least 2,000 volumes per annum to our accession list. In ten years this would increase the total of our library to 36,000 volumes. And this steady supply of new books is actually needed in an institution such as ours. The library of a college, when properly managed and made useful to the students, has more to do in the education and development of thought and character than the faculty itself. He who has free access to a large and well-chosen library, with proper guidance in its use, has all necessary facilities for a broad and liberal education.

The additional shelf room provided for us during the summer of 1891, by changes in the reading room, has all been occupied by books, and the old question of providing room for the volumes

added by donations and by binding our periodicals is again a source of trouble. It is certain that the present year will require us to find room for about 1000 more volumes. Many of the alcoves are already overflowing, and constant breaks are made in classification, while sets of books have to be separated with considerable distance between the parts of sets.

We must have more commodious quarters for our library. The rooms now used, if all the books were made readily accessible, would hold only about 10,000 volumes. We have now 6000 volumes practically out of reach of our students, because of the height of the shelves from the floor. If the students from a single class room were all sent at once to consult the library, there would be little more than standing room for them there.

Our State can well afford a more liberal policy toward her institutions of learning. Our College must ask for large appropriations both for a fire-proof library building and for books, and insist upon getting them. We cannot get along further, with our present narrow quarters and feeble equipment of books.

JEALOUSY.

BY JOHN DEWEY, '98.

In so many of the old legends and fairy stories that we read, there is an old dragon guarding the gateway of some enchanted place where a young princess wants to get in. These awful creatures (the dragons, not the maidens) cause so much trouble, death, and destruction that, at last, a brave young knight comes along, kills the dragon, rescues the maiden, and all live happily ever afterward.

All of these things used to happen years ago, but there is a worse dragon now-a-days that lives right in the midst of every people under the sun. Everybody knows he is there, but nobody likes him and thinks, of course, he is no place near them.

Eyes make a great deal of difference in the looks of a person. Beautiful eyes can make almost any face beautiful. And vice versa. Perhaps, the reason that no one likes this old beast is because of his eyes. They are not very pretty, to be sure, for they are green. And some one a long time ago has named this "green-eyed monster" jealousy.

This beast, jealousy, is found in ever so many shapes and sizes, and from the universal to the individual form.

Nations are jealous of each other, different parts of a country, people of the same part, classes of workmen of each other, cliques, men, and women, also, and even babies and dogs. You may think this latter is getting the matter down to a pretty fine point, but, nevertheless, it is true. Didn't you ever see a dog, when his master pets another one, go around the corner and pout, or else get mad and bite? Or when a mother takes up another baby, how her own will fret? It is all jealousy, and we all learn it very young.

Among the workmen there is always more or less this feeling. I think it prevails more among musicians than any other class. It may exist as much among artists, architects, etc., but I think it is hardly so noticeable. Some one has said that "There is no one so pleasant in the world as a musician when he can take the lead in his art, and no one so disagreeable as when he has to acknowledge that some one can beat him."

In all organizations, two or three are likely to go together all of the time, and by the others these are called a clique. There may be several of these cliques, and these are almost invariably disagreeing and talking about each other. Some may have a better time than the others, and the latter get jealous. This is where the most fault of these cliques lies.

Everybody knows that nobody likes this old

monster. He is a sort of wolf in sheep's clothing in any fold he may get into. So if we find him in ours, let's put him out as quickly as possible or he may eat up one of the lambs.

THE ROYAL AGRICULTURAL COLLEGE OF ENGLAND.

In regard to the present condition of the college, I will simply record my own observations.

The main college building is a solid, substantial stone structure occupying the site of the old farm buildings. Of the latter, the only sites remaining are the farm house, which is occupied by the superintendent, and the barn which has been converted into a chemical laboratory. The college building proper includes the class rooms, laboratories, museum, dining hall, apartments of the resident professors, and dormitories for the students. Other studies connected with the college are the chapel, veterinary hospital, workshops, and a few other buildings. Surrounding the buildings are about twenty-five acres, which are devoted to a few experimental plots, paddocks for a few animals, a botanical garden, and athletic grounds. The farm proper is not managed by the college authorities, but is operated and worked by a graduate of the college, who has achieved a high reputation in agricultural circles. The general management is similar to that of the best managed farm of the neighborhood. The regular four-course rotation is followed and quite a large variety of crops are grown. Sheep are the chief stock. Of these about 500 fine, well selected Cotswolds are kept. A specialty is also made of Berkshire pigs.

In addition to the stock of the farm, I found that a few specimens of quite a number of different breeds of cattle and sheep are kept for the simple purpose of class illustration. These are under the immediate charge of the Professors of Agriculture and Chemistry.

There is no compulsory labor system, but those students who desire it have opportunity to take part in all the operations in progress upon the farm. Skill and excellence in the various kinds of work, such as plowing, sheep-shearing, horse-shoeing and the like, are rewarded the same as proficiency in the class-room. Another excellent feature is that each student is required to keep and submit for examination a labor journal, containing a brief account of all the work done on farm. They also keep what is termed a cultivation book, showing the condition, progress and growth, yield, etc., of every crop. Excursions are made by the senior students to the best dairy farms and stock-breeding establishments in the neighborhood and reports of these visits are made, a prize being awarded to the best. A prize is also given every session for the best report on the work of the college farm during that period.

The ordinary college course extends over two years, or six sessions, but in order to receive the diploma seven sessions must be attended. There are no entrance examinations, but it is expected that each applicant for admission has received a good general education. They must be eighteen years of age. The number of students varies from sixty to 100. Only once or twice in the history of the college has the latter figure been reached.

As a rule, the equipment is fairly good, but is easily exceeded by some of the best agricultural colleges and departments of agriculture in many of the state universities of America.—Prof. Lazenby of Ohio University.

FRUIT AS A FOOD.

Very excellent authority says: "It is a fact that such fruit as the apple, the pear, and the plum, taken when ripe without sugar, diminish the acidity of the stomach, rather than provoke it. The vegetable sauce and juices are converted into alkaline carbonates, which tend to correct acidity. A good ripe apple (raw) is one of the easiest of vegetable substances for the stomach to deal with, the whole process of digestion being complete in eighty-five minutes." In the French hospitals an apple poultice is applied to inflamed eyes. It is probable that such fruits taken as food also serve as allayers of inflammation in the stomach and other alimentary organs. This is peculiarly true of cranberries and grapes.—*St. Louis Globe-Democrat.*

THE DECORATION OF SCHOOL GROUNDS.

Kansas school boards seem not yet to have arrived at the point where they can appreciate the desirability of "fixing up" their school grounds. They apparently assume that when a shelter has been provided for the children during school hours, and a person employed to listen to recitations, that their work has been nobly done. Not one school board in ten throughout the State has ever given the slightest aid or encouragement to any attempt to redeem the school-house surroundings from the dreariness and barrenness of wild prairie.

Children who imbibe their knowledge amid such desolation cannot be expected to do more than reflect the character of their surroundings. The crudeness of the things with which they must come in contact, and which of necessity are a part of their lives, will be almost indelibly impressed upon their natures. They may learn to glibly repeat the list of Presidents, to extract square root, and to spell daguerreotype, but they will never acquire a liberal education. They will never learn to study for the love of it. The very thought of study will be inseparably connected with dismal unattractiveness and become utterly repellent. Daily attendance at the "little red school-house" will be as disagreeable and unsatisfactory a task as studying a multiplication table, which, instead of stopping with the "twelve," go on in a dreary, unending round, offering no solace for the present, nor hope for the future.

How readily this might all be changed by a little foresight, followed up with a small expenditure of money and labor. Merely seeding the yard to blue grass will do more toward placing the children in a position to enjoy life than will a month's schooling. The addition of some well-selected shrubbery and a few good shade trees will be fully equivalent to the addition of two months to the school year.

The labor connected with the redemption of the school grounds might nearly all be performed by the pupils themselves, and they would enjoy doing it. Not that they are usually very much in love with work as such, but they love the beautiful and will hardly hesitate at any amount of labor, the performance of which promises them pleasure. To be successful—and successful they must be or all interest will cease—the desired effects must be studied, and finally fixed upon before operations are begun, and all efforts must then be directed toward the proper end. The first of these two things is the work that is to be done during the winter. Teachers and patrons and school boards should take the matter seriously in hand and make ample preparations now for radical improvements in the spring. Don't wait for Arbor day, and then when that arrives confine your attention to the haphazard planting and empty ceremonials usually attending the observance of the holiday. Formalities on that day are all right as far as they go, but they must be backed up by a good deal of very informal labor to be of much avail. It is too much to expect to be able to provide in one day of each year for continuous enjoyment during the rest of the season. Even if the spare time of the school for several weeks each year with occasional help from outside is given to the work it will be all well spent.—*Kansas Capital and Farm Journal.*

NATIONAL ROAD LEAGUE.

The first meeting of this Society convened in Central Music Hall, Chicago, on the evening of October 20th. The meeting was called in order that some definite action might be taken towards providing the people of the country with passable roads. About 1,000 persons were in attendance.

A constitution was read and adopted. In the speeches the needs of the farmers of the United States were set forth and various suggestions were offered to provide ways and means to gain governmental aid on country roads. This, it was held, can be easily accomplished, as the government has always extended its help to new industries. It was also advocated that convict labor be employed on the roads. Judge E. H. Thayer, of Iowa, was elected President of the League, and S. K. T. Prime, of Dwight, Ill., Secretary. Among the speakers during the evening were Col. A. A. Pope, of Boston; Capt. Shaw, of New Hampshire; Gov. Fuller, of Vermont; Gen. Post, of Galesburg, and C. B. Ripley.—*Orange Judd Farmer.*

With the many helps a farmer now employs in the use of labor-saving machinery, farming can be reduced to a system of methods.

CALENDAR.

1892-93.
 Fall Term—September 15th to December 23rd.
 Winter Term—January 9th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Commencement.
 1893-94.
 Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

The roof of the new propagating pits will be in position today.

Sugar beets for analysis are arriving daily from all parts of the State.

A son, born November 9th, gladdens the home of Mr. and Mrs. Breese.

Prof. and Mrs. Lantz are receiving congratulations of friends upon the birth of a daughter Friday, November 4th.

Mr. F. N. Philbrook, of Chepstow, Washington County, visited his son and daughter in College on Tuesday and Wednesday.

Prof. Walters' nine-year old son, Hannibal, had the misfortune to break his left forearm by falling from a horse on Sunday.

Mr. Coan, of Salina, is here again to deliver photographs of student groups made last week. The pictures are good, and many were ordered by the sitters.

The carpenters are today removing the partition between the printing office and the hall, by which considerable additional floor space and more light will be gained.

Bulletin No. 34, from the Farm Department, entitled "Experiments in Feeding Steers," is being mailed. It will be sent free to applicants within the State.

Professors Popenoe, Lantz, Walters, and Mason will present papers before the State Horticultural Society at the Winfield meeting, December 7th to 9th.

Rev. Mr. Dougherty, pastor of the Congregational Church at Kansas City, Kansas, with his daughter, visited his son Bradford, in First-year classes, yesterday.

As will be seen by the proceedings, published elsewhere in this issue, the Board has authorized the purchase of a horsekin for the Department of Veterinary Science. It has been ordered from Paris.

Bertha Kimball, as editor, has placed in the hands of the printer the eighteen letters she has received from the Class of '90, numbering twenty-seven members. The letters will be issued in about two weeks.

Experiments are in progress under the management of the Horticultural Department to test the hardiness of grapevines, which will be accomplished by pruning the vines and laying and mulching half of them, leaving the others exposed to the weather till late spring.

The Third Division of the Third-year Class entertained the audience in Chapel yesterday afternoon in the following program: "The Perpetuity of the Republic," A. Johnson; "Give the Men a Chance," Lillie Dial; "Wit and Humor," J. J. Johnson; "A Good Word for Winter," Mary Finley; "Mexico," F. R. Jolly; "Opposite Examples," I. Jones.

Mrs. Kedzie and the Cooking Class, or, properly speaking, the Cooking Class and Mrs. Kedzie, treated the Regents and Faculty and Faculty wives to an excellent "breakfast" at six o'clock on Thursday evening. The meal was a credit to the cooks, and was highly enjoyed by the guests, who testified to their appreciation of the repast by singing "America" on a full stomach.

The following students visited their homes, fifteen to two hundred and fifty miles distant, to vote: Messrs. Floyd, Kinsey, J. J. Johnson, I. Jones, McPhee, G. L. Christensen, Boardman, Painter, Hulse, Smyth, F. and W. J. Yoeman, Powell, Webster, Atkinson, Phillips, Grisier, Abbott, Lerrick, Lawlor, Vincent, G. Forsyth, Scheel, Robinson, Hiestand, John, Ellis, Sandt, Phipps, Neimoller, Riddell, Poston, Dick, McCandless, and Griffey.

GRADUATES AND STUDENTS.

H. N. Whitford, '90, is granted a first grade teacher's certificate.

F. A. Waugh, '91, spent two days with College friends this week.

Bertha Winchip, '91, has returned from a summer's visit in New England.

G. V. Johnson, '91, has gone to Boise City, Idaho, to teach for the winter.

Eusebia Mudge, Fourth-year, visited home in Eskridge from Friday to Monday.

C. A. Campbell, '90, and D. C. McDowell, '91, came up from Emporia to vote.

H. B. Walter, student in 1890-91, writes from Hillsdale that he is running a saw-mill.

H. W. Mattoon, Second-year in 1891-2, spent a few hours at the College on Wednesday morning.

A son was born, November 8th, to Fred Elliott, '87, and Eva Knostman-Elliott, student in 1889-90.

W. E. Whaley, '86, has taken charge of the Manhattan High School, vice Miss Gerrans, resigned.

G. M. Munger, in Second-year classes, drops out of College, temporarily, and goes home to day to doctor his eyes.

W. P. Tucker, '92, has, it is reported, bought an interest in the Douglass *Tribune*, a paying newspaper property.

Emma Secrest, '90, and J. N. Bridgman, '91, are well pleased with their studies in Leland Stanford University in California.

D. W. Working, '88, of the Longmont (Col.) *Times*, expresses an opinion on "Agricultural Colleges" elsewhere in this issue. Working knows what he is talking about, too.

G. L. Clothier, '92, writes that he is elected Superintendent of Public Instruction for Waubunsee County, on the Populist ticket, and that he will try to do honor to his alma mater.

Maude Sayres, '89, is on the program for a paper in the Department of Natural Science at the annual meeting of the Social Science Club of Kansas and Western Missouri, at Topeka, November 17th and 18th.

E. B. Bacheller, Fourth year in 1885-6, teaching at Oakley, will read a paper on industrial education at the annual meeting of the Northwest Kansas Teachers' Association at Phillipsburg, November 25th.

J. E. Dorman, Second-year in 1890, has been visiting his College friends this week in company with Mr. Benedict. Both have been connected with the Guernsey dairy herd of Vice President Morton at Rhinecliff, and are on their way to take charge of a dairy enterprise at Lehi City, Utah.

Miss Marie Mattoon [student in 1883-4] died of congestion of the brain at her home, 815 Hunton street, Thursday night, November 3rd. Funeral services will be held on Sunday afternoon at 3 o'clock, at the Swedenborgian Church.—*Topeka Capital*.

THE BOARD MEETING.

The Board of Regents were in session Thursday and Friday of this week, with all the members present.

The biennial report to the Governor was considered in first draft and finally adopted, and the Secretary was authorized to combine with it the reports of the President and the several Professors, and transmit it to the Governor for printing, appending a history of the College, prepared by Prof. Walters.

The Secretary was authorized to notify persons delinquent as to payment of land contracts for two years past, that their contracts are forfeited, and that after December 25th, next, it will be impossible to reinstate them.

After sharing in the "breakfast" prepared by the Cooking Class, a joint meeting of the Board and Faculty called out the presentation of the condition of the several departments, with the various

wants to be supplied, each member of the Faculty making a statement of the progress of classes and various duties.

The Committee on Employees presented a report, which was adopted, making the following recommendations:

That Mr. F. C. Sears be made Foreman of the Gardens, at a salary of \$600.

That President Fairchild be authorized to employ a janitor as successor to Mr. A. C. McCreary, whose resignation on account of ill health was accepted, to take effect December 31st.

That Prof. Georgeson be authorized to employ, when necessary, a successor to Wm. Shelton, at a salary of \$600, and to look forward toward the employment of suitable assistance in the office and Station.

That the Board ask from the Secretary of War that Lieut. E. A. Helmick, of the 4th U. S. Infantry, be detailed as successor to Capt. E. B. Bolton, in August next.

Upon recommendation of the Farm Committee, Prof. Georgeson was authorized to complete the paving of the barnyard, at an expense not to exceed \$200, and to continue feeding experiments the coming winter.

The estimates of the Station Council of necessary expenditures during the present quarter was approved.

The completion of the propagating pits, with general connection of heating systems for all the pits and greenhouses, upon estimate, furnished by Prof. Hood, and including heaters for the classroom and offices, was authorized.

Other expenditures in the several departments were authorized as follows: Horticulture, stock and cions, \$50; forestry collection, \$75; Mathematics, Y level, \$150; Industrial Art, models, and patterns, \$42.50; tables for drafting room, \$456; Household Economy, range and utensils, \$70; Printing, removal of partition, \$20; Military, additional uniforms, \$115; Physics, apparatus, \$55.50; Veterinary, supplies and horse-skin, \$886; Botanical, supplies and check list, \$31.50.

The report of the Finance Committee, auditing the accounts of the quarter ending October 31, and approving the investments, was adopted.

The Board then adjourned to meet Tuesday, January 17, at 3:30 P. M.

AGRICULTURAL COLLEGES.

Not all the colleges named "agricultural" are true to the name. In some States the funds set aside for agricultural colleges have been given to colleges with "agricultural annexes." These do not and cannot truly represent the new education; for in them the influence of the old scholastic method is bound to assert itself and make students in the departments feel that they are not really a part of the institution they are in. The college, to be a real Agricultural College, must be entirely distinct from literary institutions.

Types of the last sort of Agricultural Colleges are to be seen in Kansas, Michigan, and Colorado. In these all the officers and teachers are in sympathy with industrial education. From President to Janitor, they believe that no man is less a man because he walks between the plow handles or uses a blacksmith's hammer than if he stood behind the money-changer's desk or the minister's pulpit. These institutions are conducted in harmony with the idea that no calling can honor an honorable man, but that any honorable man honors any calling. They make no distinction between the woman whose hands knead the bread for her family and the woman who earns bread for her family by practicing medicine.—*Longmont (Col.) Times*.

Farming is a business, and the man who would make a real success of it nowadays must be a good business man. He must be an all-round good business manager. Besides buying and selling, and the employment of labor, there are the planting, cultivating, and harvesting of crops, the breeding, feeding, and care of live stock, the use of machinery, and a hundred other important things that require intelligence, skill, and executive ability of a higher order. There are a thousand little details of the business to be carefully looked after to make the farm do its best. Taking everything into consideration, the wonder is that there are not more failures on the farm than there are. No business in the city would long stand under the easy-going management of the average farmer.—*Farm and Fireside*.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

The twelfth semi-annual meeting of the Social Science Club of Kansas will be held at Topeka, November 17th and 18th.

There are nearly 10,000 young men and women attending colleges and universities in the State this year. There are over two dozen State, denominational, and private schools for higher education in Kansas, and every one of them is prosperous.—*Humboldt Union*.

A writer in *Harper's* this month, in an article on "Western Education," says: "The average amount of work done by average college men is larger in the Western than in the Eastern colleges," but, he adds, "Their salaries are beggarly pittances."

No. 2 of the *Kansas University Quarterly* has reached our reading table. The pamphlet contains an article on Unicursal Curves by H. B. Newson; a statistical survey of the Foreign Settlements in Kansas, together with a Dialect Word-List by W. H. Carruth; a description of the Great Spirit Spring Mound by E. H. Bailey, and a discussion of Pascal's Limacon and Cardioid by H. C. Riggs. The magazine is well printed, and contains over fifty pages of valuable contributions to science. It is a credit to the Faculty of the State University.

A map of Kansas twelve feet long and six feet wide, making the scale three miles to the inch, will be exhibited at the World's fair. Every school-house in the State will be represented by a small red cross, and there is no section of the map where these marks will be more than an inch—that is, three miles—apart. In the eastern half of the State, the average is six school houses to every township. The idea is worthy of Kansas, but why not make a crown the emblem of the school house instead of a cross?—*Kansas City Star*.

Mr. Irving Taylor of the Topeka bar has published a new book on a new subject, "The Public school law of the United States as administered by the courts." The book forms a heavy volume of about 400 pages, covering near 5,000 cases, with appendix-synopsis of State laws. Price, \$3 in cloth binding and \$5 in law sheep; postage to any part of the State, 25 cents. The *Western School Journal* says of the work: "If the contents of this book were 'inwardly digested' by every school officer, much unseemly wrangling would be saved, and many lawsuits would be impossible. There is not a school district anywhere which is not interested in the decisions published by Mr. Taylor. He has gathered from all the Supreme Court decisions which will have weight in every court in the Union. The book should be furnished to every school officer at the cost of the district, and every teacher should try to secure a copy."

We are in receipt of the program of the tenth annual session of the North Central Teachers' Association, which will convene at Junction City, on November 24th, 25th, and 26th. The meetings will be held at the Opera House. A rate of one and one-third fare has been secured on all roads. The hotels have made their usual reductions, and free entertainment will be furnished by citizens for those who come from the greatest distance. On Friday evening there will be an elocutionary contest, for which the public will have to pay twenty-five cents per seat or thirty-five cents for reserved seats. The program is unusually rich and interesting. It closes with an excursion to Ft. Riley on Saturday. There will also be an exhibition of school work. The exhibits should be prepared exactly as for the World's Fair, and all teachers and superintendents are asked to endeavor to make this part of the program a success.

The Twenty-sixth Annual Meeting of the Kansas State Horticultural Society will be held at Winfield, Cowley County, on Tuesday, Wednesday and Thursday, December 6, 7, and 8, 1892. The session will open on Tuesday at 10 o'clock A. M. Although the present year has been unfavorable to the success of the horticultural industry in many lines, it undoubtedly has been educational, has taught some lessons which will be valuable in the future, and highly important to those who will not be present at the meeting, but who are eagerly watching for the published report of the Society. The Cowley County Horticultural Society has kindly offered free entertainment during the

meeting, and a committee appointed by that Society will assign all attendants to quarters on arrival at Winfield. The usual reduction in railroad fare will be asked; and if refused, notice will be given in time to avoid any misunderstanding. Come to this meeting, remembering that next year, 1893, the products of your orchard, vineyards, and small fruit plantations will be solicited to make up the grand exhibit at the World's Columbian Exposition, a matter of the greatest importance to our State, and which will be fully presented to the Society for consideration.

The more like school the farm can be made, the more interest there is developed in work, study, and recreation, the less thought there will be of leaving the farm.—*New York Tribune*.

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, J. T. Willard; Vice-President, Minnie Reed; Secretary, Marie Senn; Treasurer, C. H. Thompson. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, W. H. Phipps; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halstead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice-President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donaven; Treasurer, John Patten; Critic, M. F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell, D. S. La-Schelle, J. A. Scheel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Knickerbocker; Vice-President, Elsie Crump; Recording Secretary, Lorena Helder; Corresponding Secretary, Florence Corbett; Treasurer, Eileen Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

November 4th.
Ionian Society was called to order by the President. After singing, Miss Norton lead us in prayer. Roll-call. Programme opened with a discussion by Miss Pierce and Society on political questions of the day. M. A. Carleton and C. H. Thompson gave us their views on the subject. Instrumental solo by Laura Day was followed by an "Apostrophe to the Moon," by Miss Day. The next was a vocal solo by Miss Lyman. The Oracle was presented by Fanny Cress. It contained the news of the week. Olive Wilson read an essay on "A Memorable Bicycle Ride." This was followed by a vocal solo by Miss Newell. Under the head of business, the new Constitution was read, approved, and adopted, providing the Faculty did not object. The Society adjourned at an unusually late hour. F. R. C.

November 5th.
Half past seven in the Webster Hall found most of the members in their accustomed places. Devotional exercises led by B. S. Royer. Several studer were elected members of Society. The order of debate was temporarily suspended, and F. E. Uhl delivered a very entertaining declamation on his early school life. G. K. Thompson's select reading proved very instructive. T. H. Coman's discussion on "Manufacture of Zinc" was instructive and well illustrated. B. F. S. Royer talked on choosing a profession. On returning to debate, G. K. Thompson and B. F. S. Royer argued the affirmative of the question that agriculture as taught here is not a success, while C. H. Paul and C. S. Milburn argued the negative. The Society decided in favor of the negative. Recess of ten minutes, after which the news of the week was presented by D. C. Arnold. C. E. Freeman then favored the Society with a solo with banjo accompaniment. Report of Critic and adjournment. E. A. D.

November 4th.
The most interesting and longest session of the Alpha Beta Society this year was called to order at the usual time by the President. A beautiful solo by Miss Parker, and prayer by Mr. Miller, was followed by a recitation entitled "Benedict Arnold." The marked attention to Miss Jones as she spoke of some of the grand and noble acts of this despised traitor proved that all felt he had not been dealt with in charity. After Mr. Morgan's essay on base ball, Stella Kimball, editor, read what might be called a political number of the Gleaner, which had for its motto, "Stand up for Principle, and Kansas will stand up for itself." The ribbons with which the paper was bound were People's Party badges, which left no doubt about the editor's politics. Resolved, "That position in society is a surer means of obtaining public office than is qualification," was debated by J. C. Christensen and W. O. Lyon on the affirmative, and by E. J. Abel and Sarah Cottrell on the negative. Judges Hulett, Parker, and Timbers decided two to one in favor of the negative. After recess the Society listened to a duet by Misses Smith and Parker, and to Miss Palmer's report of the news for the week. Under extempore speaking Miss Toothaker told us about James Whitecomb Riley. She believes him to be America's Robert Burns; and read in an impressive manner two of his poems as illustrations. Mr. Spaulding spoke of the principles of the Republican Party, and his reason for wearing their motto. This excited a warm discussion between they who wore the white badge of temperance or Prohibition, and they who wore the yellow. The blue supported the white, and the yellow gave up the fight. Mr. S. I. Thackrey, a member of the Society several years ago, was present and gave us a short talk. Old "A. B.'s" are always welcome. W. H. P.

BULLS FOR SALE.

The College has a few fine Shorthorn bulls which will be sold reasonably. Also a Hereford and a Holstein-Friesian bull. They are all animals of much individual merit and of the best breeding. They can be sold cheaper now than in the Spring. Professor Georgeson will answer all inquiries concerning them.

Farmers' sons and daughters must not allow themselves to be led to give up the idea of attending school somewhere by sensational advertisements for a "Revised Encyclopedia Britannica," which is announced by otherwise reputable papers as teaching "law, mechanics, engineering, literature, and all of the arts and sciences," and which is confidently asserted to "contain as much instruction as can be had from a college education." No doubt the work advertised is worth the price asked, about \$10, but as for taking the place of a college course, or of a month's schooling even, it cannot do it.—*Topeka Capital*.

MANHATTAN ADVERTISEMENTS.

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FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

VARNEY'S BOOKSTORE.—Popular Head-quarters for College Text-Books and Supplies. Second-Hand Books often as good as new. Call when down town, Always glad to see you.

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E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler." Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, Jewelry, and Gold Spectacles, also Musical Instruments. '75.

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DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

D. R. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

D. EWEY, the photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue.

BOOTS AND SHOES.

R. ELIABLE Boots, Shoes, and Rubbers, direct from the leading Eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

LESL E H. SMITH.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

S. HULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

SHAVING PARLOR.

BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

GENERAL MERCHANDISE

THE SPOT CASH STORE is Headquarters for Dry Goods, Novelties, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

E. B. PURCELL, corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, NOVEMBER 19, 1892.

NUMBER 13

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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NELSON S. MAYO, D. V. S., M. Sc.,
Professor of Physiology and Veterinary Science.

JULIUS T. WILLARD, M. Sc.,
Assistant Professor of Chemistry.

ALBERT S. HITCHCOCK, M. Sc.,
Professor of Botany.

SILAS C. MASON, B. Sc.,
Assistant Professor of Horticulture.

MISS JOSIE C. HARPER,
Instructor in Mathematics.

MISS ALICE RUPP,
Instructor in English.

ASSISTANTS AND FOREMEN.

C. M. BRESEE, M. Sc., Assistant in Chemistry.

JULIA R. PEARCE, B. Sc., Assistant Librarian.

BESSIE B. LITTLE, B. Sc., Assistant in Sewing.

GRACE M. CLARK, B. Sc., Stenographer in Executive Offices.

WM. BAXTER, Foreman of Greenhouse.

W. L. HOUSE, Foreman of Carpenter Shop.

E. HARROLD, Foreman of Ironshop.

C. A. GUNDAKER, Engineer.

A. C. MCCREARY, Janitor.

ASSISTANTS IN EXPERIMENT STATION.

F. A. MARLATT, B. Sc., Entomologist.

W. M. SHELTON, Foreman of Farm.

F. C. BURTIS, B. Sc., Agriculture.

M. A. CARLETON, B. Sc., Botany.

COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

THE MANUFACTURE OF ICE.

BY PROF. E. R. NICHOLS.

ONE hundred years ago Murdock first used gas as an illuminant. The use of gas has since steadily increased, even during the last decade since the introduction of electric lighting. One of the most important by-products in the manufacture of coal gas is ammonia. And it is of this ammonia and its use in the manufacture of ice that I wish to call your attention. The unit of heat used in the following is that required to raise the temperature of one pound of water one degree Fahrenheit.

It requires a certain amount of heat to change the state of matter; that is, to liquify a solid or vaporize a liquid. If a pound of water at thirty-two degrees be mixed with a pound of water at two hundred and twelve degrees, the two pounds resulting from the mixture will have a temperature of one hundred and twenty-two degrees. The pound at thirty-two has gained as many units of heat as the pound at two hundred and twelve has lost. If, however, a pound of ice at thirty-two degrees be mixed with a pound of water at two hundred and twelve, the resulting two pounds of water will have a temperature of fifty-one degrees. The pound of water has lost one hundred and sixty-one units, while the pound of ice has gained nineteen units. Here, then, is an apparent total loss of one hundred and forty-two units. These one-hundred and forty-two units of heat were required to change the pound of ice to water without any increase of temperature. This heat is not lost, but is concealed or latent, and will be reproduced when the pound of water is changed to ice. It requires, then, the withdrawing of one hundred and forty-two units of heat for each pound of ice formed from water at thirty-two degrees, or two hundred units for each pound of ice formed from water at fifty-eight degrees.

Similar to the above, it has been found that it takes nine hundred and sixty-seven units of heat to change a pound of water of two hundred and twelve degrees to a pound of steam at the same temperature, and nine hundred and twenty-five units to change a pound of liquid ammonia at thirty-eight degrees below zero to a pound of vapor at the same temperature. Water at ordinary pressure of the atmosphere—about fifteen pounds to the square inch—boils at two hundred and twelve. If the pressure were thirty pounds per square inch, it would require a temperature of two hundred and forty-nine degrees to make it boil, and at a pressure of forty-five pounds, it would require a temperature of two hundred and seventy-three degrees. If water were subjected to the latter pressure and heated to any temperature between two hundred and twelve and two hundred and seventy degrees, and the pressure suddenly released, the water would be instantly converted into steam and would withdraw heat from the surrounding substances at the rate of about nine hundred units for each pound of water.

It will be noticed that ammonia boils or vaporizes at a very low temperature,—thirty-eight degrees below zero, or seventy degrees below the freezing point of water,—and has a very high latent heat of vapor, two essentials for a substance to be used in the production of artificial cold. In the manufacture of ice, the ammonia gas is first compressed into cylinders and pipes connecting with the freezing room by pumps capable of exerting a pressure of from one hundred and fifty to two hundred pounds to the square inch. This reduces the ammonia gas to a liquid. The freezing room is usually three or four feet deep, filled with salt water, through which runs a net-work

of pipes. Tanks, or forms, filled with pure water are set into this brine from above and covered with a portion of the floor. These tanks are slightly tapering, and usually hold one hundred pounds of ice. The compressed ammonia is allowed to escape into the net-work of pipes in fine jets. Since the temperature of the pipes is above the boiling point of ammonia, the ammonia is instantly converted into vapor. But it requires heat to vaporize any substance, and the ammonia must have nine hundred twenty-five units of heat for every pound vaporized. This heat must come from the surrounding objects. In this case it comes from the brine, and the brine in turn absorbs heat from the water in the forms until the water is frozen. The brine is used because it has a lower freezing point than water. As fast as the ammonia gas forms it is pumped out and again compressed to be used over and over with scarcely any waste.

Artificial ice can compete with natural ice, and cities so far south that they have to depend on artificial ice, usually have ice at less cost than their northern sisters.

YOUNG PEOPLE IN ENTERTAINMENTS.

BY MRS. N. S. KEDZIE.

OF all the work done in a school, perhaps the most popular among pupils and parents is that planned with a view to display, before a public audience, whatever talent the pupil possesses. It is always a pleasure to see young people able to speak or to sing, to act a part, or to acquitted themselves well in any line of public work; and it is even more enjoyable to see little children do good work in the entertaining of their friends. The dainty, cunning ways, the graceful postures, the childish voices, appeal to the love for childhood which we all hold in our hearts.

We all feel that such work for pupils helps them much in gaining self confidence, in training the voice, and in giving them power over themselves in trying positions. But is there not another side to this question of public work for children and young people?

As a rule every school has more or less work in rhetoricals, which will do much of the training of voice and body, and do it in the day time. One of the greatest objections to the work of school entertainments, as they are usually managed, is the fact that the children taking part in them are up and out so late at night.

Every child who has enough talent to be used in such places is very likely to be of nervous temperament, and the nervous excitement is more or less wearing upon his health. No matter if he does enjoy the work, it takes nerve to do it; and even though he seems as well as ever, and full of life, the inevitable collapse will follow, when he is worn out and his nerves lose their usual even hold on all he does. Sleepless hours are one of the indications of overwrought nerves, and many a mother can tell of the child who couldn't sleep the night before nor the night after "he did so well" in the school exhibition.

We hear many complaints that teachers over-work their pupils by giving them too many and too hard lessons, by obliging them to pass examinations which make them nervous and excited for hours; but frequently those same children are allowed to be in various evening entertainments for the benefit of church finances, for the public library, or perchance, this year, for the Columbian Club. If all this were required in the school work, we should hear more complaint than comes now. As it is, no one appreciates the harm being done so much as does the teacher, who sees her brightest pupils losing day after day the benefit

they ought to have from their lessons, simply because their nervous energy is exhausted by work for some evening entertainment.

There is no doubt but some public work is helpful, and the child grows because the work is at first hard for him to do; but there can be no question as to the evil that often comes because of overwork in this line. If teachers have school exhibitions, the lessons ought to be lightened; if children are allowed to enter various outside public entertainments, their school work should be dropped for the time. No child can safely do both to any extent. It is for the parent to decide which he prefers for his child—the entertainment or the school. For many a child this is a serious question to be settled, and the parents are the only ones responsible in the matter.

FRUIT ON THE TABLE.

THE fairy that carries fruit in her hand seems to have forgotten Kansas this year, even our usual crop of apples being almost entirely wanting.

The problem of providing suitable food for the household in many a family is more difficult to solve when this dearth of fruit must be met, for in this climate the fruits form a good part of the every-day eating of all people.

When apples are plentiful the different ways in which they are eaten supply to the family in a great measure the mild sub-acid the system needs, and from raw apples, so acceptable to almost everyone, through the list of apples baked and boiled, fried and pickled, made into pies or pudding, through all the variations of which an apple is capable, every method of preparation makes healthful food that is good for the one that partakes of it.

Any substitute for apples must be extremely palatable or it soon loses its attractiveness. Even in the orange countries, where that delicious fruit is plentiful, apples are highly prized because, though the orange is so delicious when freshly picked, it is of very little value to the cook, while there seems no end to the usefulness of the apple. Still, when the apple is so scarce, as it promises to be this winter, we must use something to take its place. Of course, the market shows canned goods in many varieties, and besides these there are many dried fruits. The Turkish prunes are, perhaps, the cheapest in market, and there are many kinds of fruits of all grades, most of which are palatable. Evaporated apples one soon tires of, but dried apricots and prunells, pitted plums and prunes, as well as the various dried berries, will, if carefully washed, then soaked a few hours, and simmered slowly until done, then well sweetened just before taken from the stove, give a sauce which is very pleasant to the taste, and if eaten with sugar and cream is better than all the pound for pound preserves one's grandmother ever made. Lemons may be used in many ways, and will take the place of medicine in a large number of Kansas ailments if only used freely.

It seems like an unnecessary outlay of money to buy fruit all winter, especially to one who has had apples for years, and who has been conscious of the cellar well stocked with canned fruits and preserves the busy housemother has put up during the summer, but this year the cellar is anything but full, and fruit is necessary to healthful living. When we do not raise it we must buy it from some country that does have it. Fruit costs more money than it costs to go without it, but doctors' bills cost more than fruit.

We run risks often to our sorrow, but the wise housekeeper uses the ounce of prevention, and in many families the various ills that come through malaria are kept away by a wise use of fruit in the every-day diet.

Salads in various forms, pickles (sweet or sour),

any of the foods where good cider vinegar takes a prominent place, will in some measure take the place of part of the acid needed in the body, but, while they will help, they cannot take the entire place of fruit.

This year, especially when we look forward to a year that shall bring to us much disease, we need to order and plan our living as wisely as possible. It is stated that in years when cholera has reached Europe, and for several years afterward, there has been everywhere an increase of disease that indicates impoverished blood. If this be true, it behooves us to see to it that the "house we live in" is kept in good order, that no germs of disease may find lodgment; and nothing does so much to keep the body healthy as plenty of fruit in the regular diet. "Fruit is golden in the morning, silver at noon, lead at night," is not true in Kansas, but if properly served and eaten, whether raw or cooked, fruit is golden at all times; for it gives us healthy bodies, without which no one can be equal to happy work.—*Mrs. Kedzie, in Kansas Farmer.*

WILL GOOD ROADS PAY?

A very large part of our agricultural products, grains, as well as meats—perhaps more than one half of our perishable vegetables, small fruits, poultry, and dairy products—are brought to the consumer solely by wagon. The larger part of the food consumption of man and beast in our villages, towns, and smaller cities is brought by wagon, without the intervention of the railway, from the farm to the consumer. It would appear that of the farm products transported by horse-power, scarcely one-half is transported by rail or water; while practically all farm products transported by steam or wind are transported by horse also. This being true, is it not true that wagon transportation of our farm products costs twice as much as the remainder of their transportation to the consumer?

The great magnitude and importance of wagon transportation is not generally comprehended. Farmers have not realized that to get farm products to railway or vessel costs more than all their after transportation, and hence are often indifferent to the means of wagon transportation, being content with miserable highways. Every effort has been made to promote railroads at the expense of wagon roads. And though economies will still further reduce freight rates by rail or water, how much greater is the margin for savings in wagon transportation by means of better roads. So long as wagon transportation costs twenty times as much as rail transportation, and seventy times as much as water transportation, the first named offers the most promising field for economy. Farmers have only to closely consider these and other points involved to find an affirmative answer to the question, will good roads pay?—*American Agriculturist.*

The value of farming land in England is gradually and rapidly depreciating in value because it is unable to compete with foreign producers, and in this country it will do the same unless better methods are adopted to bring as much out of them as the highest science and the best skill can accomplish. We are running altogether too much cereal grains because they are comparatively lazy men's crops and afford a long spell of rest between sowing and reaping, but it must be born in mind that that which costs the least labor is usually worth the least money, and, that which entails the most labor realizes the highest price. Land is worthless until labor touches it, and even then skilled labor is worth all that it costs.—*Colmar's Rural World.*

You must be sure of two things: You must love your work, and not be always looking over the edge of it, wanting your play to begin. And the other is, you must not be ashamed of your work, and think it would be more honorable to you to be doing something else. You must have a pride in your own work and in learning to do it well, and not be always saying, there's this and there's that—if I had this or that to do it might make something out of it.—*Middlemarch.*

Knowledge is the foundation of success. The farmer who is the constant student of the laws which govern his occupation is the one in whom we have the most faith.

BRAIN VERSUS MUSCLE.

We have known men to make and save money at farming, who were out of bed and ready to go to work as soon as they could see; who worked upon the jump until it was nearly time for breakfast, then milked the cows and turned them into the pasture, gave the hogs some swill, threw a little corn to the hens, and swallowed their breakfast as rapidly as possible to get back into the field to work at top speed until noon, when they took a hasty bit of such as was provided for them, that they might hurry back again to work till the hour appointed for supper, after which they worked until dark, and then had the cows to bring up and milk, unless the boy had done that, and the hogs to feed again (the hens were not thought of by him at night, though some other member of the family might have fed them), then tumble into bed to sleep the sleep of the thoroughly exhausted until another day began.

They had no more brains than their oxen, and not as much as their horses, yet by going without all the luxuries, most of the comforts, and some of the necessities of life, they accumulated property enough to carry them from old age, which came at fifty or sooner, to the time when death relieved them from pain.

We have seen another who was ready to meet his hired men at the hour appointed for beginning the day's work, tell them what must be done; look over the stock and note the condition of each animal, and give directions for the feeding and care of each one; look over the fields, perhaps riding as he did so, to plan the work that must come next in order; put a little time into a visit to the market, or an examination of the market reports of his agricultural paper; see to the putting up of his products for market; look occasionally to see how the hired help were doing their work; see that the cows and other stock were brought to the barn at the right hour, and that their rations were of the proper character and given at the right time; and find plenty of time to take a ride now and then for pleasure or business.

His teams were always in working order. His cows gave more milk, and his sheep yielded more wool, and his fields larger crops than any other farmer's did, and he was "lucky." He never lost animals by disease, or crops by insects or rust, and he always got the highest prices. He used his brains in all that he had to do, and his neighbor used his muscle. He made the most money, took the most comfort, and contributed most to the pleasure of his family and friends, and his sons are farmers to-day. Which is the best example to follow?—*Farm and Fireside.*

No young farmer will lose anything by remembering what the venerable *Massachusetts Ploughman* says, that a man who keeps his fence repaired, his gates swinging on their hinges, his barn doors hung, his buildings painted, farm machinery out of the front yard, brush and boards and straw in their proper places, is likely to find many other desirable conditions attending him. His whole business method is careful, and he makes money. Things look nice around the house, and his wife wears one or more bright smiles. He is the man who, whether he is a millionaire or not, is always in a position to enjoy himself. Don't consider this superficial. There is philosophy in it, and wisdom, too.

If you have any rough sheds that you wish to cover cheaply this winter, get a few loads of flax straw if possible, instead of hay or wheat straw. The flax straw will not blow away so readily, will mat down and shed water better, and will last far longer than either of the other materials. But it is questionable whether it would not pay better to put up good sheds and cover them with shingles rather than to bother with temporary affairs which are always unsatisfactory, and must practically be replaced each fall.—*Kansas Capital and Farm Journal.*

I hate to see a man's arms drop down as if he was shot, before the clock's fairly struck, just as if he'd never a bit o' pride and delight in 's work. The very grindstone 'll go on turning a bit after you loose it.—*George Eliot's Adam Bede.*

A warm stable will save feed, for unless you provide stock with warmth, in some other way, it must be provided in the form of feed—or they must starve.—*Western Farmer and Stockman.*

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.

Winter Term—January 9th to March 31st.

Spring Term—April 3rd to June 14th.

June 14th, Commencement.

1893-94.

Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Rev. D. C. Milner led in chapel exercises yesterday morning.

Prof. Mason's parents have moved to Manhattan from Delphos.

There are eight candidates for College janitor, and more to follow.

The Cadets were photographed on dress parade yesterday afternoon.

Miss Mollie Burk, of Leonardville, visited College the first of the week.

The *Kansas Capital* devotes three columns to Prof. Georgeson's bulletin on "Experiments in Feeding Steers."

Two boilers, each thirty inches in diameter and twelve feet long, have been ordered for the new propagating pits.

Dr. Mayo spent several days in Leavenworth this week as delegate to a convention of the Episcopal Church.

Mr. and Mrs. Frank Hayes, of Kansas City, Mo., visited College Monday with their cousin Blanche Hayes, Third-year.

Almost an inch of wet snow surprised early risers on Thursday morning, and traces of it were to be seen in shaded spots at high noon.

Mrs. Kedzie and Miss Harper attend the meeting of the Social Science Club of Kansas and Western Missouri at Topeka, this week.

President Fairchild and Professor Georgeson attend the annual convention of Agricultural Colleges and Experiment Stations at New Orleans, this week.

Editor Stewart of the *Manhattan Republic*, student in 1873-4, and later Superintendent of Printing for a term of seven years, is favorably mentioned for State Printer under the incoming administration.

Prof. Georgeson is to read a paper on "The Balanced Ration—When to Use It," before the nineteenth annual meeting of the Iowa Improved Stock Breeders' Association, to be held at Humboldt, Iowa, beginning December 7th.

Capt. Bolton and the Cadets regret that this fine autumn weather cannot be improved in target practice. They have, however, the poor consolation of knowing that the fault is Uncle Sam's, not theirs, since ammunition has long been ordered.

Mr. John MacDonald, editor of the *Western School Journal*, visited the College yesterday morning with Dr. Milner. Mr. MacDonald treated many hearers at the Presbyterian Church on Thursday evening to "An evening with Robert Burns."

A late number of *Science* contains an article, "The Botanical Library of a Station Botanist," by Prof. A. S. Hitchcock, of this College, in which he argues that without the knowledge of French, German, Latin, and possibly Italian, and without a number of periodicals printed in these languages, the experimenting botanist of to-day cannot carry on his investigations profitably.

Yesterday afternoon the second division of the Fourth-year Class presented chapel orations as follows: "Put Up the Bars," G. K. Thompson; "Following the Ruts," Maud Gardiner; "Emancipation of Woman," W. O. Lyon; "A Woman of the Eighteenth Century," Susie Hall; "Three Acts in Our National Drama," Ivy Harner; "The Strife for Something Better," T. E. Lyon.

And now it is Fairchild. The "Big Four" of the class of '86 is no more. Harbord is in the army, Higinbotham is married, Whaley is again a teacher, and now Fairchild has just got married. The handsome cards announcing this latter event bear

the date of Nov. 10th, 1892, Passiac, N. J., the place, and Miss Georgia E. Perkins the bride. The many friends of Mr. Paul H. Fairchild hereabouts will join with the *INDUSTRIALIST* in congratulations upon this happy event and in wishing for the newly made family all of the good things in life that should come to people who deserved them. May Paul never have a more gloomy prospect in life than the beautiful face which confronts him daily across the table is our wish.

The special session of the Webster Society this evening promises a literary and musical treat to the fortunate 250 persons who hold invitations, as the following programme attests:

Music, Quartette Happy Greeting
Messrs. Patten, Ames, Shoup, Hulett.

Address Invocation My Patriotism
C. A. Kimball.

Music, Instrumental. "P. M. Quickstep" By C. E. Freeman
Messrs. Tr. der. Lyon, Cutler, Freeman.

Debate—"Should Provision be Made by the Government for the Inspection of Foods to Prevent the Sale of Adulterated or Unwholesome Articles?"

H. G. Pope, F. W. Ames.

Oration The Vital Question of the South
C. F. Pfuetze.

Music, Quartette Jolliest Boys Alive
Messrs. Patten, Ames, Shoup, Hulett.

Declamation "Little Potter's" Story
C. H. Paul.

Society Paper Reporter
J. V. Patten.

Oration Take Time to Grow
Geo. W. Smith.

Unfinished Business New Business
Music, Banjo Solo Shattuck

GRADUATES AND STUDENTS.

Rev. M. M. Lewis, '84, is pastor of the Baptist Church at Ogden, Utah.

Louise Daly, Fourth-year, spent several days last week at her home in Smith Center.

W. J. McLaughlin, '87, has been granted a five-year State teacher's certificate.

Sam Kimble, '73, delivers an address to-day at the Democratic ratification meeting in town.

J. E. Taylor drops out of Fourth-year classes to take up carpenter work in Chicago for a year.

A. E. Newman, '90, has recently been re-elected Superintendent of Public Instruction of county "C," Oklahoma.

Effie Gilstrap, '92, writes a pleasant letter from her home in Oklahoma, and encloses many clippings for the scrap book begun by the Fourth-year Class in Literature last year.

C. L. Marlatt, '84, in the Entomological Division of the Department of Agriculture at Washington, is superintending the preparation of the Government entomological exhibit for the World's Fair.

D. W. Working, '88, was married, November 9th, to Miss Ella Grace Booth, of Denver. The happy couple will be at home in Longmont, Colorado, after December 10th. Mr. Working is editor of the Longmont *Times*.

Paul Halstead Fairchild, '86, was married November 10th, at Passaic, N. J., to Miss Georgia Everett Perkins, daughter of Mr. and Mrs. John T. Gay. Mr. and Mrs. Fairchild are at home in Brooklyn, where the groom is a practicing physician.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, J. T. Willard; Vice-President, Minnie Reed; Secretary, Marie Senn; Treasurer, C. H. Thompson. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, W. H. Phipps; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halstead; Newsman for first half term, Martha Cotrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Douaven; Treasurer, John Patten; Critic, M. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell, D. S. La-Schelle, J. A. Scheel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Knickerbocker; Vice-President, Elsie Crump; Recording Secretary, Irena Helder; Corresponding Secretary, Florence Corbett; Treasurer, Ellen Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

November 11th. Promptly at 2:30 P. M. President Knickerbocker called the Ionians to order. Singing, devotion, and roll-call. Minnie Copeland and Eva Staley were initiated. The Oracle was presented by Oiga Huber, after which we listened to a vocal solo by Mary Lyman. Motion made that, as the program was short, Misses Pierce, Helder, Thompson, and Hoyt be allowed to do what was originally assigned to them. The ladies were under arrest at that time. Kate Pierce gave "The Society Prophecy." Rena Helder entertained the Society with a vocal solo. Misses Thompson and Hoyt were unprepared. Report of Committees. The by-laws of the Society were read and adopted. The rules of order were also adopted. Misses Hoyt, Pierce, Lyman, Wilson, Thompson, and Helder were tried for non-performance of duty. All were fined, with the exception of Miss Lyman. Under propositions for membership, the names of Misses Dial, Denton, Emma and Minnie Finley were proposed. Motion made that a vote of thanks be extended to the ladies who so liberally supplied the treasury that afternoon. Report of Critic. Reading of minutes. Roll-call, with quotations. Adjournment. F. R. C.

November 12th. The Hamiltons were called to order by Pres. Abbot. C. J. Peterson led the Society in prayer. R. M. Philbrook and B. W. Medaris were elected to membership. E. C. Joss, G. H. Johnson, and R. M. Philbrook were initiated. Mr. Kellogg's declamation compared the standing of the Debtor and Creditor. W. L. Hall read an interesting essay on Grover Cleveland. V. I. Sandt's select reading was a description of the drummer. The question "Does our success in life depend more on the tact we possess than on the efforts of influential friends?" was argued on the affirmative by W. J. Yeoman. Mr. Yeoman thought tact was what carried a person through life. It was La Fayette's tact that caused his name to be mentioned in American history. If a young man obtain a position through the influence of friends, he must have tact to perform the duties that fall upon him. W. E. Smith said the influence exercised on a child had a great deal to do with his after life. The influence of classmates may have much to do with the success of a student. G. G. Boardman, on the affirmative, spoke of the tact that enabled Washington to overcome the superior forces of British troops. A. D. Benson, continuing the negative, spoke of the influence necessary to obtain a commission in the English army. Had it not been for the influence of friends, Benedict Arnold would not have turned traitor. In closing, Mr. Yeoman said that rulers are chosen because of the tact they possess, regardless of the influence brought to bear. W. E. Smith, in closing the negative, thought that the late election showed that the influence of friends would carry one to success, as no one would believe that Mr. Cleveland had as much tact as Mr. Harrison. Decision was in favor of the negative. A. L. Frowe gave the news of the week. Music by the Hamilton quartette. F. R. Smith told why the eyes of animals shine in the dark. Considerable time was spent under the head of unfinished business, Report of Critic. Adjournment. I. J.

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

The State Industrial School for girls now has 100 inmates.

There are 8811 school-houses in Kansas and 12,260 teachers in active service. There is no use for the stars to try to get away from a State like that.

The teachers of Chautauqua County held their fall meeting at Cedar Vale on Saturday, November 12th. Prof. John McDonald delivered an evening lecture.

C. G. Swingle, principle of the Randolph schools, has been elected Supt. of Public Instruction of Riley County. He is an enthusiastic educator, and will make a first-class Superintendent.

State Superintendent of Public Instruction G. W. Winans, who was the candidate of the Republicans of Geary County, was not elected. Some city of Kansas ought to secure his services as Principal at once.

Dr. David S. Jordan, President of Leland Stanford Junior University, lectured in University Hall, Lawrence, last evening on "Agassiz as a Teacher." Dr. Jordan was a student of Agassiz and his lecture consisted largely of personal reminiscences.

Baker University is to have a gymnasium. It is to occupy the entire eastern half of the garret in the old stone building. Prof. S. E. Robertson donated \$100 for apparatus, and the students have given as much to make the location fit for habitation. The work will be pushed rapidly to completion.—*Beacon*.

Governor-elect Lewelling has been connected with educational work during a good part of his life and ought to be well acquainted with the general needs of the educational institutions of the State. He has been a school teacher, a Regent of the Iowa State Normal School, and the Superintendent of the Iowa State Reform School for Girls.

In view of the long and frequent reports of football matches in the College press of the State, the Emporia *Life* pertinently asks: "Wouldn't it be a good idea for some of the athletic associations to dispense with the colleges which are attached to them? The associations could do much better work, and as the college department seems only a secondary matter, it, without doubt, could be dropped out to the benefit of all concerned."

The arrest of three dozen college students at Baldwin City, for giving their college yell on the main streets of the town, is certainly a bold step on the part of the civilian officers of that quiet hamlet. Heretofore it has been accepted as a precept of common law, that citizens in a college town have no rights which students living therein are bound to respect. If the young men are convicted a precedent will be established which will be gratefully received into full standing at Heidelberg, Cambridge, Eton, Ithaca, Bonn, and Lecompton.—*Kansas City Star*.

William Sims, a young colored man, has brought suit against the Kansas Medical College to recover \$5000 damages because he was dismissed from the school on account of race prejudice. Mr. Sims has located in Oklahoma, and prior to going to Topeka to enter college was practicing medicine there on a certificate. He gave up his practice in order to obtain a regular diploma from a recognized medical college. He passed examination at Fisk University, Nashville, Tenn., and Harvard University in Washington City, and also before a committee appointed for that purpose when he applied for admission to the Kansas college, but his admission was refused on account of his color.

At the Kansas Institution for the Education of the Deaf and Dumb, located at Olathe, pupils from the State are admitted to all the privileges of the Institution free of charge, being provided with board, washing, fuel, light, tuition, books, and everything necessary, except clothing and traveling expenses. Applicants should not be under eight nor over twenty-one years of age. Children possessing weak constitutions, or who have failed to attain the ordinary growth and vigor of mind and body, should not be brought to the Institution under twelve years of age. All the pupils will be required to labor a portion of each

day, the girls in performing the lighter kinds of house work, and various kinds of needle-work, as sewing, ornamental work, dress-making or millinery, etc., and the boys at various trades, the necessary work about the Institution, and the cultivation of the farm and garden.

A few days ago, misled by an item floating about in the news of the State, the *INDUSTRIALIST* innocently made the statement that the Indian boys of Haskell Institute at Lawrence had defeated the State University football team. It was an unlucky star that guided us on that day, for letters, newspaper clippings, insinuations, and personal interviews have made our life miserable ever since, and we are glad to give in, now, that the item was a slander on the University, the beloved Alma Mater, the noble Athens of Kansas, and the whole State. We are ready to take it all back, to assert that the Kansas University football team has been victorious thus far on every football field from Pike's Peak to the Wabash River, and to promise that we will never fool with a hornet's nest again. Hoch lebe die Staats Universität!

Henry N. Gaines, Superintendent of Public Instruction-elect, was born in Morgan County, Illinois, October 27, 1859. He moved to Kansas with his parents in 1869, and located in Linn County. Here young Gaines attended the common schools, graduating from the high school of Mound City. He then located in Saline County, being engaged as instructor in the high school of Salina. After teaching for two years at this place, he attended the State Normal at Emporia and the State University at Lawrence, received the degrees of B. A. and A. B. He was chosen principal of the Central Normal at Great Bend, where he continued for one year. He then took charge of the High School of Salina, where he is at the present time Superintendent of the schools of that city. He was formerly a Democrat, but joined the People's Party in 1890.—*Topeka Capital*.

THE "GOOD ROADS" MOVEMENT.

The people of Iowa and Missouri are entitled to the credit of having taken the initiative in formally organizing for the purpose of systematically improving their roads. The conventions held at Des Moines and Chillicothe show that a pretty general interest is taken in the subject, and it is well understood the proposed reform cannot be carried out otherwise than by a considerable pecuniary outlay, but that the work will be well worth all it costs.

The speakers at the Iowa convention have emphasized the necessity of a radical change. One of them asserted that bad roads damaged the creamery and cheese interest of his State this year so much as to reduce the profit of the farmer twenty per cent, and defined a good road as one that enables the farmer to market his produce when prices are most favorable. Another showed how freedom of social intercourse over good roads improves the individual and the community, helps to happy social life, and thereby "arrest the regrettable tendency of many people to rush to the cities." And he said that if life was made bright on the farm there would be fewer inmates of insane asylums, which doubtless is true.

The plan for Iowa is that six roads be constructed to run north and south and six to run east and west in each county, the estimated average cost of which is to be \$1,500 per mile. This will bring every farmer within moderate distance of a road, and will admit of intermediate thoroughfares being subsequently constructed if required.—*Kansas Farmer*.

If you think it doesn't take any special knowledge or experience to make a success of farming, hire the next city chap that comes along hunting a job. By the time he has spilled a few pailfulls of milk, from trying to milk the cows from the near side, had a runaway and smashup from getting the lines crossed, broken the beam of the plow by running it into the sod, got the team tangled up in the harrow, and one of them ruined by trying to turn too short, and accomplished a few other things like this, you will have changed your mind and will have come to the conclusion that farming comes pretty near being a profession.—*Topeka Capital*.

There is a general tendency toward an increase in land values. To equalize the matter, it must be made to produce more valuable crops. This means that we must become better farmers.

"Not to make money, but to make men," is a noble purpose. But from a practical point of view, would it not be well to do both? The ideal American farmer of the future is a business man of brains, not only skillful in making his farm do its very best in production, but successful, from his knowledge of markets and their demands, in producing just what will sell best and realize the highest price for it. He will not only know how to farm well, but how to be happy and make money while doing it.—*Farm and Fireside*.

If you are looking for cattle that can stand all sorts of rough usage, that can subsist on the smallest amount of food, and that of the poorest quality, and that will grow fat during the winter without other protection than that afforded by a barbed wire fence and the McKinley bill, don't buy any of the improved breeds. Better buy scrubs. They will only cost half as much as good stock, and will not come further from making you a profit under the treatment mentioned than will pure-bred animals.—*Topeka Capital*.

MANHATTAN ADVERTISEMENTS.

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THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, NOVEMBER 26, 1892.

NUMBER 14.

THE INDUSTRIALIST.

PUBLISHED WEEKLY
BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

TO PLANT TREES, OR TO SAVE TREES.

BY PROF. S. C. MASON.

SINCE the settlement of Kansas, volumes have been written on the subject of timber culture in the prairie regions, and national laws have been enacted for its promotion. The pages are few which counsel the preservation and improvement of the natural timber within our State, or suggest that the best returns may be met with in working with nature at points favorable to the growth of trees, rather than attempting their culture where all the natural conditions are against them. The Timber Culture Act, for many years in force, expressly stipulated that its provisions applied only to sections of land upon which no natural timber was growing. Upon sections where a fringe of trees did appear along some stream, no inducement was offered to aid nature, either in extending the plantation or in preserving what was established. So we have had the spectacle of the settler trying to perfect his title to a quarter section of arid prairie by planting and keeping alive for a term of years a few acres of cottonwoods and catalpas, while upon an adjoining section, which in the allotment of lands fell to the State or school apportionment, the belt of timber watered by a little stream and sheltered from fires and buffaloes by its steep banks, would be stripped off till scarcely the stumps remained to tell the story.

At present the most of the land in our State has passed to private ownership, and there are few pieces of timber which are not guarded by a resident owner or tenant, so that general plundering is no longer possible by one who does not own the land. In the more western portions of the State, where the scarcity of timber has always given to every stick a cash value, the owners of a timber land are often preserving it with a good deal of care, and the general clearing of a bend or grove is not common.

Over the eastern fourth of the State the timber growth is much more abundant, and in many localities would be sufficient for the wants of the population for a good many years, if only the old were cut, and the valuable and thrifty trees spared. But here a different danger confronts us. The land just back from the streams is often bluffy and broken, much of it suitable only for pasture. The owner of a farm may have a large proportion of pasture land, while upon the richest bend of his creek bottom grows a fine body of timber. Often much of this has grown since the settlement of the country, after the fires have been checked. But this ten or twenty acres would make a wonderfully rich corn field, and his neighbors back on the prairie or in the nearest town will pay a good price for cord wood. Oak and walnut posts always meet with a ready sale. He and the boys will get at it next winter and clear that bend up. To be sure it looks like a pity to cut so many fine trees, and so many treeless sections a few miles away, but that bend has paid him very little profit so far, and he has plenty of wood for his own use after that is gone. A man is not expected to look out for the needs of his neighbors, and as for those trees ever being worth anything for lumber, that will not be in his day, and the boys will have to shift for themselves as he did. The posts and cord wood from that bend will pay off that note at the bank, and the corn crop on the ground every year will pay more than the timber ever has, and that upper field is getting pretty well run out already. The timber is his, and it he can't do what he pleases with it, who can?

So in go the axes and the saws as soon as corn husking is over, and the next spring sees a crop of corn planted among the stumps. To be sure,

the farmer's faith in his course is a trifle shaken the next summer when a dealer comes in and buys up all the first-rate walnut logs in the country to ship to Liverpool; and he hears that the same thing has been done at every point in the valley where good logs could be found near a railroad. Then the township board informs him that they have had lots of trouble to get oak plank for the new bridges. Yes, there was some as pretty oak and walnut in that bend as ever he put an ax into, but he couldn't wait twenty years more for them to grow into saw logs. There were a few pretty fine old walnut trees in that bend, too, but they made lots of fence posts, and this was the first time since he settled here that anybody had offered a decent price for walnut lumber. Must be getting mighty scarce in the East when they come clear out to Kansas for it, and ship it to Liverpool in the log.

And who shall say that the farmer is not right, as he sees things? He has his bread to earn and his debts to pay, and the banks are not liable to extend his note or reduce the interest because he happens to own a bend of timber that will make valuable saw logs in twenty years. Yet the facts remain that every winter sees more and more of the clearing up of such choice blocks of timber, and every year the dealers in hard-wood lumber find more difficulty in filling their orders. Who will suggest the remedy?

A PLEA FOR EXERCISE.

BY JOSIE C. HARPER.

EVERY person is provided with an apparatus for locomotion. Neither it nor the general system can attain to or keep in good condition unless properly used. The frame-work of the body consists of about two hundred and fifty bones. These are fastened together, coated over, and serve as a support to the apparatus contrived for putting them in motion. This consists of a great number of bundles of lean flesh, called muscles.

If these bones and muscles are properly and sufficiently used, they will retain their various properties and powers. The bones, if not used enough, may become too brittle, and the muscles, if not exercised sufficiently, become small, feeble, and unhealthy. The bones and muscles are made for a vast amount of motion, and a great deal of exercise is necessary to keep them in health; the more they are used the firmer and stronger they become.

Girls, being by nature weaker than boys, need more exercise to keep them strong and vigorous. They may not have use for so large and strong bones and muscles as boys, but they need activity and power of endurance. Every part of the body should have its due share of motion, and no exercise gives this desired motion to every part better than walking. Girls should be trained to walk, so that they will not be tired by the walk of a mile or two; then a tramp through the woods or over the hills in search of some treasure will be a pleasure, and leave no "tired feeling" for days after.

As a rule girls are trained to sit too much, whether at school, at home, at study, at work; or even at amusement they sit most of the time. This is particularly true of girls at an age when thought too large to play and romp, and they are continually reminded that they are too big to do this, too old to do that, until they feel that to walk with a snail-like pace and a woe-begone countenance is a virtue.

Let the girls walk with energy and vigor, even if it is at a higher speed than laid down by certain straight-laced rules of decorum. Activity and quickness of motion belong to youth, and are

absolutely necessary to the development of the body. Every girl should fully understand that the proper, regular, and healthful exercise of all her muscular and bony system is indispensable to health, and that the more this matter has been neglected in the past, the greater the necessity that it be attended to in future.

THE CRITIC.

BY F. R. SMITH, '93.

THIS peculiar creature we meet with everywhere, and under all circumstances. It matters not what field we enter, whether for pleasure or profit, we always find someone ready to criticize us.

Every age has had its critic. Every book that has been written has had its faults emphasized, and in fact everything that is deemed worthy of attention must first be handled by this class of people before its merits or demerits are made known to the public. While some look upon his suggestions as of a "Meddlesome Mattie" character, and only make sport of his peculiar ideas, others have come to regard him as really necessary to their prosperity.

If a man's judgment is worth anything at all he should not hesitate to accept it in anything that pertains to his own individual interest, and then consider anything that may be tendered by disinterested parties. I believe many persons have failed in undertakings that would have proved successful had they depended on their own judgment instead of following out some other person's ideas.

The critic has his field as well as any other specialist, and he is certainly beyond its boundaries when he engages himself in men's individual affairs.

We all have our faults, and we should all be willing to admit them. Were this the case, the field for the class under consideration would not be so large. Before any of us take upon our shoulders the task of pointing out the faults of others, it would be a wise step to inquire into our own actions and see if we do not possess the same or similar faults. It is a failing in all, I think, to be too hasty in forming their opinions of others' actions, and altogether too hasty in expressing them when once formed.

A PLEA FOR CLEANLINESS.

BY BESSIE B. LITTLE, '91.

NOT long since, a man with his hands in his pockets, his trousers tucked in his boots, his hat slouched on one side of his head, and a general tattered and torn appearance, stood on the sidewalk chewing and spitting, and spitting and chewing. Finding life dull, he sauntered off, unnoticed by anyone, to begin operations anew on a clean spot in the sidewalk. Soon a lady emerged from a door near by, and hurrying along past the spot where the man had been standing, dragged her skirts through whatever chanced to come in her way.

Immediately a group of gentlemen standing near held up their hands in holy horror, and not a few remarks were passed about this lady, who serenely sailed on about her own affairs.

Soon after several articles appeared in the papers, speaking of the dangers attendant to mankind from this source, and of how germs were caught up and blown about in the air and contagious diseases contracted. The article closed with an earnest appeal to the ladies to cut off their trains. No mention was made however, of how the germs came to be there, or of the man who so leisurely sauntered off down the street.

This world was not made for filth; it was made for grace and beauty; and if womankind chooses to add to it by any little fancy of her own why should there be a great furor, and perhaps a law passed that she shall not use or wear this,

that, or the other. Imagine our passing a law that mankind shall cut his trousers off so that they shall reach half way between his knee and his ankle! It reminds one of a flag at half mast.

One need not necessarily advocate the wearing of a train on the street; indeed it is not to be commended. Leaving aside the bother of holding it up, it looks, as it is, dirty.

On the other hand, let some attention be given to those who use tobacco, then there will be little need to "cry havoc."

WASTEFUL METHODS.

Farmers waste more than any other class of business men. Why is it? Farmer C. is going to market with 40 pounds of butter today. Will he carry any thing else? No, he can't bother today. To be sure, there is more pie plant and asparagus than the family can eat; it might bring him \$1.50 to \$2.00, but he doesn't care to fuss for that. Then a little later come strawberries, but he can give away what the family doesn't want if the neighbors will pick them themselves. As for early peas, there are hardly enough to pay for fussing with them. He may pick three pecks at 45 cents, but they soon spoil or the birds carry them off. The grocer tells him he will take all the sweet corn he will bring and pay for what he sells, and he can take the remainder home to feed the pigs. Here is a dollar or two extra, and he can carry it as well as not when he goes to market with butter and eggs; but it is a bother, anyhow. It is the same at harvest time. If he cannot spare more than a couple of barrels of apples, or five bushels of potatoes, or two dozen cabbages, squashes, etc., he does not bother to find a market for so small a quantity, and perhaps he puts several dollars' worth of vegetables that he has no use for into the cellar, or out-door pit, simply because he doesn't take the trouble to sell them.

Now, I fancy, says a writer in the *Gleaner*, I hear some man say: "The potatoes, etc., are worth something to feed stock in winter." Does he feed them? Generally they remain in the cellar until February or March, when he carries out decayed cabbages, apples, etc.; and the potatoes have shriveled until he thinks he'll let them go until planting time, for he may need most of them.

A merchant often spends more time in selling 50 or even 25 cents' worth of his stock, than in selling a \$15 dress pattern. We say that is his business! It is a farmer's business to try to sell his stock instead of letting it waste. A penny saved in farming is worth as much as in any other business. In the largest business establishments if a book-keeper's account falls short a few cents, he often spends hours of valuable time trying to find out where the error lies. A farmer needs to calculate as closely as any other business man in order to be successful. Does he do it?—*Orange Judd Farmer*.

NEGLECTED FALL WEEDS.

Is the mistaken practice of too many otherwise good farmers to let fall weeds alone. The crops are all out of the way, and the weeds apparently doing no present injury. But all the same the chances are, says *American Cultivator*, that they are ripening seeds that will make many hours of work next year and for years to follow if not checked in time. It is one of the chief misfortunes of allowing weeds to seed that the evil that they will do will not become apparent at once. If all weed seeds grew after the year they fell it would be comparatively easy to destroy them. Nature is wiser than that. Some she buries too deep, others too shallow, to germinate the following season. The result is that the careless farmer who allows a weed to seed on his premises is never sure when he has got rid of it. Part of the seed he buries with the plow either this fall or next spring. It comes up year after year, as successive plowings bring it near enough to the surface to germinate. The only way to save trouble is to prevent the weed from seeding. It may be cut after the seed has ripened and the plant be burned, but even then some seeds are almost sure to escape. Weeds, as Martin Luther long ago observed, are like sins. The only safe way is to destroy them as they appear and before they seed.—*Farmer's Review*.

The man never lived who didn't get hints that were worth thousands of dollars to him if he had only the sense to lay hold of them.—*New York Witness*.

ABOUT THE BARN.

The barn and stables are probably as apt to be neglected as any other part of the farm. Many little things are let go, even when noticed, because they are generally observed either at night, when it is either inconvenient or impossible to attend to them, or in the morning, when the time must be given to the regular work. A day (not necessarily a rainy one) might profitably be spent in making repairs and correcting little inconveniences and deficiencies of the average barn, and several days if the barn-yard manure heap and surroundings enter into the contract.

Damage by rains or snows is an unnecessary thing in every case, and steps should be taken in time to avoid it. A few nails and a little timber and work will stop any leak that might otherwise ruin a part of the hay or grain stored away. The doors and windows are rarely in good shape, either a hinge being broken, a latch off, or something needing attention. A little work now will prevent their aggravating flapping and "stubbornness" in winter gales, to say nothing of the increased comfort given the stock. The feeding troughs, mangers, etc., may also be looked after with profit. The "cutting-room" or "feed-room" may be cleaned and rearranged to suit the special requirements of the winter. It is hardly ever the case that the stock kept one winter is the same in number and kind as the winter before, and knowing what is to be kept this year we can make the necessary preparations or changes now. We can also stop any "cold" cracks in the floor or wall, if we haven't already taken that standing piece of advice.

But it is no use to multiply items of this kind. The thing most needed is for the proprietor to take a little time to study and arrange for his own convenience and his stock's comfort, and while the points mentioned may require his attention, no doubt many of greater moment will suggest themselves. The object of this note is not to point out the things to be done so much as to call attention to the fact that in nine barns out of ten some such work is necessary. Now, let us not all think that we have the exceptional barn until we investigate a little.—*Husbandman*.

AS TO FOOTBALL.

The last game seen played by the writer was in Geneva, Switzerland, nineteen years ago this month. The positive brutality and constant danger to life and limb took away all desire of witnessing another contest. We are constantly assured that in this country, under changed and strict rules, foot-ball is a truly scientific game, promotive of vigor and health, and that there is now no brutality or danger of serious injury. This the writer cannot dispute from personal observation; but as an example of frequently published reports, take this: Our local newspaper, in giving an account of a meet on Saturday in Chicago of two "college elevens," whose members ought to be models in propriety and in obeying scientific rules, says nothing of minor hurts and bruises, torn garments, etc., but it mentions incidentally that "V. D. was hurt in the scrimmage, one of the tendons of his side being broken, and J. W. Y. was put in his place."—"N. was cut in the head and neck and bled profusely."—"S. was badly cut in the nose." (The italics are ours.) Wonder what the casualties would have been if the game had not been "a tame one, ending in a tie," as the report says. In a recent game between Kansas University and the University of Illinois, the Captain of the Illinois team had his arm broken in three places. In practice games this fall, four of the Illinois University men have been laid up for the season; two with broken collar bones, one with sprained ankle, and the fourth "injured internally." Quite probably the writer is prejudiced by ignorance, as this "amusement" is now allowed and approved by sundry college professors, and is popular outside of colleges.—*Orange Judd Farmer*.

The one thing which has impressed us more forcibly than all else is the fact that weeds grow fast and hired men work slow. We were obliged to keep the cultivator going in our corn and potatoes through the haying and harvest season, and we believe that no investment made this year paid as well in clear profit as this labor. Our observation for a number of years among the farmers of Michigan leads us to believe that the cultivated crops of the State might be increased fully one-third in yield by more thorough and systematic cultivation.—*Grange Visitor*.

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.

Winter Term—January 9th to March 31st.

Spring Term—April 3rd to June 14th.

June 14th, Commencement.

1893-94.

Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

There were no College exercises on Thanksgiving Day.

Miss Rupp's recent editorial is republished in the *Salina Tidings*.

Foreman Sears spent Thanksgiving with the home folks at Tescott.

Prof. Olin gives an address before the Teachers' Association at Howard today.

Mr. J. H. Phipps, of Chapman, visited his son, in Third-year classes, one day this week.

Secy. and Mrs. Graham spent Thanksgiving Day at the home of J. W. Berry, '83, at Jewell City.

Mrs. Steele of Minneapolis, visited with her daughter Bertha, in Second-year classes, this week.

Two heats a week will be run in the foundry until castings for the new propagating pits are finished.

Prof. Georgeson has been in Kansas City for several days gathering up steers for a second feeding experiment.

Mr. and Mrs. Breese enjoyed a visit last week from the former's mother, who returned to her home in Cottonwood Falls on Tuesday.

Prof. Mason is collecting in Chautauqua County. The INDUSTRIALIST may have something of interest to report next week concerning his trip.

Prof. Popenoe, Prof. Georgeson, and Dr. Mayo will take part in a Farmers' Institute at Louisville, Pottawatomie County, December 22nd and 23rd.

Regent Finley represents the College in the National Farmers' Congress in session at Lincoln, Neb., this week. Regent Wheeler is a State delegate.

Many students ate their Thanksgiving Day dinner at home, and a number who could not go and return the same day were excused from classes on Friday.

The experiment of growing wheat continuously without fertilizer of any kind bids fair to be successful another—the fourteenth—year, if the healthy, vigorous growth of the cereal at this time may be taken as an indication.

Prof. Nichols has just completed the task of putting twelve incandescent lamps in the iron shop. They will be operated by the dynamo purchased several years ago, and which until now has been used solely for classroom work in physics.

At the regular meeting of the Scientific Club, last evening, Prof. Nichols read a paper on "Determination of the Horizontal Intensity of the Earth's Magnitude," and Prof. Willard described a whistling well in Winona, Logan County.

President Fairchild reports a pleasant and profitable meeting at the Convention of Agricultural Colleges and Experiment Stations held last week at New Orleans, and which he and Prof. Georgeson attended as delegates from this institution.

The pocket gopher, as is well known, is one of the most wary of the burrowing rodents, and is rarely caught, even in the most skillfully devised traps. It was with considerable satisfaction, therefore, that I. Jones, a Third-year student, presented to the Museum, one day this week, a specimen which he captured on the parade ground while drilling.

The Thanksgiving Social was a very enjoyable affair for the large number of students, graduates, Faculty, and employes. The program consisted

of music by the band and orchestra, and a representation of the effort of the Council of the old town of Lowenburg, to require the women of the city to embrace the religion adopted by the men, the methods adopted, and results. While entirely impromptu, it was well presented. Graduates present were, Eusebia Knipe, '90; Mayme Houghton, Pearl Dow, Paul Milner, Madeline Milner, '91; A. D. Rice, G. W. Wildin, Elizabeth Edwards, '92.

President Fernald, of the Maine Agricultural College at Orono, visited the College Monday forenoon on his return from the New Orleans Convention. After an address to the students in Chapel, Mr. Fernald spent the remaining hours of his brief stay in an inspection of class-room work, giving special attention to the industrial features, which the institution he represents does not enjoy.

The State Board of Public Works, consisting of Chairman Smith, Judge J. S. Emery, Hon. Sol Miller, and Capt. J. G. Haskell, architect, visited the College yesterday to learn our needs in the way of additional buildings. They recommend the general plan for Library and Museum Building, Botanical and Zoological Laboratories, general steam plant, farm house, dairy, and pigery, with such general improvements as may be necessary.

The Fourth Division of the Third-year Class appeared in Chapel yesterday in the following program of declamations: "After the Shackles have been Removed," W. Joss; "The Genius of Common Sense," Isabella R. Frisbie; "Labor Organizations," T. W. Morse; "The Place of the Imagination in the Art of Expression," Marie Haulenback; "Look Forward and not Backward," J. F. Odle; "The Penalties of a Well Known Name," Blanche E. Hayes; "Hamilton and Disraeli," J. A. Scheel.

In the contributions from the United States National Herbarium, Vol. 1, No. 5, Mr. E. M. Fisher publishes a revision of the North American Species of *Hoffmannseggia*, a genus of leguminous plants, ranging through Southwestern United States and Mexico. Several new species and varieties are here described for the first time. Among them is *Hoffmannseggia Jamesii*, Torr. and Gray, var. *Popenoeensis*, based upon specimens in the National Herbarium collected by Prof. Popenoe in Kansas. *Abromia Carletoni* is a new species published in the November number of the *Botanical Gazette*. It belongs to the four o'clock family, and was collected in 1891 by Prof. M. A. Carleton in Eastern Colorado.

GRADUATES AND STUDENTS.

J. W. Hartley, '92, was a caller last Saturday.

G. W. Wildin, '92, spent Thanksgiving in town.

Ina M. Turner, '89, visited in town a few days last week.

S. N. Chaffee, '91, teacher at Lasita, is at the College today.

Mr. and Mrs. H. D. Hall, of Farmington, visited the College yesterday.

A daughter arrived recently at the home of D. G. Robertson, '86, in Osborne.

Nellie McDonald, Delpha Hoop, and Caroline Stingley, '91, visited the College Friday.

Minnie Reed, '86, post-graduate student, is visiting for a few days at her home in St. Clere.

Georgie Rees and Phoebe McCormick, Second-years in 1890-1, visited College friends Friday.

Marie Senn, '90, post-graduate in English, spent several days this week with her brother at Lasita.

A. A. Gist, '91, has been appointed station agent for the Rock Island Railway Company at Victoria, Kansas.

A. D. Rice, '92, is having a vacation of two weeks, while his new school-house near Randolph is being completed.

O. S. Kenyon, Second-year, attended the Thanksgiving sessions of the Teachers' Association at Junction City.

Cardis announce the marriage of John A. Zimmerman, Third-year in 1891-2, to Cynthia L. Harmon, Second-year in 1889-90, at the residence of the bride's parents in Valley Falls, Kan., on

Thanksgiving Day. Mr. and Mrs. Zimmerman will make their home in Kansas City.

F. C. Sears, '92, writes an entertaining column of College news in this week's *Kansas Capital and Farm Journal*.

Dora Thompson, Third-year, and Eusebia Mudge, Fourth-year, spent Thanksgiving at the home of the former in Blue Rapids.

Irene Bridgman, Second-year in 1888-9, who has been teaching in Colorado this fall, passed through town yesterday en route to Norwalk, O., where she was called to the bedside of her aunt.

Susie Hall, Fourth-year, was present at the marriage of her brother, Herbert D. Hall, student in 1886-7, to Miss Bertha P. Bryant, at the bride's home in Atchison, November 23rd. Mr. and Mrs. Hall will be at home in Farmington, after November 25th.

W. H. Olin, '89, Superintendent of the Osborne Schools, reads a paper before the Central Teachers' Association at Osborne, November 29th, on the subject "Beginnings in Science—a Course of Science for the first four years of school life."

The Topeka *Capital's* report of the meeting of the Social Science Club of Kansas and Western Missouri, at Topeka last week, contains the following paragraph concerning a member of the Class of '88: "Miss Maude Sayres, a pleasing young woman from Ottawa, delivered a paper on 'Electric Lighting and Motor Power,' that included a brief history of electricity, a detailed description of the dynamo, and the formation of arc and incandescent light. She dwelt upon the household advantages of lighting, heating, and cooking by electricity, and ended by saying that 'the time is coming when we shall press the button and electricity will do the rest.' "

THE WEBSTER "SPECIAL."

Promptly at eight o'clock the sound of the gavel, in the hands of Pres. Dickens, called to order the two hundred and fifty assembled guests of the Webster Society. The occasion was its Special Session.

After a song of greeting by the quartette, Messrs. Hulett, Shoup, Ames, and Patten, and prayer by Prof. Olin, Pres. Dickens, in a few words, welcomed the visitors. In Mr. Kimball's address, "My Patriotism," he told how some of his ancestors, in connection with thousands of others, had helped to form and establish our nation, and why he felt bound to love and cherish it.

Messrs. Trader, Lyon, Cutler, and Freeman then tendered in a pleasing manner an instrumental piece, "P. M. Quickstep," by C. E. Freeman.

Messrs. H. G. Pope and F. W. Ames argued the question "Should provision be made by the Government for the inspection of foods to prevent the sale of adulterated or unwholesome articles?" Many good points were made by both gentlemen, showing time and study in preparation.

Mr. C. F. Pfuetze, in his oration, "The Vital Question of the South," showed why force could not solve the race problem.

Mr. C. H. Paul told "Little Potter's" Story so well that all present could see the battle-field, the hospital, and the death-bed.

One of the best Webster Reporters was presented by J. V. Patten. Among the articles were, "The Tyranny of Fashion," "That Surrey of Oak," "Ambition," "A Query Answered," "Chronicles."

Mr. Geo. W. Smith, in his oration, "Take Time to Grow," showed why a college education pays, and how thorough preparation is needed in the work of life.

The work in "New Business" was enjoyed by all, except a few gentlemen who had a rather prominent part.

Mr. C. E. Freeman then sang a solo, accompanying himself on the banjo. A few hits was the result. "And he never smiled again." President Dickens then bid us all, in the name of the Websters, a "Good Night."

Kansas averaged over seventeen bushels to the acre in her wheat yield this year. The next best average hardly exceeded fifteen, while the average for the entire country is thirteen bushels. Already the country has learned that Kansas had the largest quantity and the best quality of wheat ever raised in the State. When to this fact is added an average in excess of all other States, except Washington, business men will return with renewed faith to Kansas investments.—*Kansas City Times*.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Prof. Dyche will begin shipping his "stuffed elephants and such like" to Chicago about the first of December.

The contract for erecting a new high school building to cost \$28,450 has been let by the School Board at Parsons.

The students of the State University are considering a number of designs for a University button. The *Courier* hopes that the weighty problem will soon be solved.

Since Prof. Snow has been elected Chancellor of the State University, he has delivered addresses in fifty-two towns in Kansas. In some of the places he has read several times.

The State Historical Society has accepted the invitation of the Kansas Board of Managers of the World's Columbian Exposition to make an exhibit from its collections, and to take charge of the historical exhibit in the Kansas Building. The reading room in the building has been assigned for this purpose. This room affords ample space for a full historical exhibit. The people of the State are invited to co-operate with the Society and with the Board of Managers in the endeavor to make this feature of the Kansas exhibit a very attractive one—one worthy of the State which has occupied so large a place in history. Pictures, historical papers, Kansas books, aboriginal relics, and all relics illustrative of Kansas history and of life and customs in the past will be appropriate. All who are possessed of articles suitable for a place in this historical exhibit are requested to address the Secretary of the State Historical Society on the subject.

SOME USES OF ELECTRICITY.

In the little city of Ottawa, capital of the Dominion of Canada, electricity has probably been more fully developed than in any other city in the world. Power for the generation of electricity is obtained from the Chaudiere Falls. The streets and houses are thoroughly lighted, and in the city of from 4,000 to 5,000 population there are in use 700,000 lamps of various kinds, with power for a million more. The cost of lighting is hardly more than nominal.

Electricity is to be extensively used for cooking and heating purposes. Already one hotel, the Winsor, uses it exclusively for cooking. It is to be used this winter for heating the electric street cars, and it is said that an even temperature of 70 degrees can be obtained with the weather at 40 degrees below zero. Heating and cooking facilities are obtained by a device patented by two young Canadians. Tailors use the fluid for heating their flat-irons, which are simply connected with the current by a small wire, with thumb screws, and the iron can be, under full force, made so hot as to set fire to paper or cloth. Great are the uses of electricity.

HIGH FARMING.

There is one point that keeps floating in my mind, and that is to farm less and farm better. I may say here that I came from England, and my father was a practical farmer, if I may use that term, although he hired all work done after middle life, but he managed it himself. He had two farms; one he owned, of about thirty or forty acres and another he rented, which was worth £3, or \$15, per acre rent. He bought a great deal of manure out of the town close by, and paid from \$1.50 to \$2 per load for it, and I have known them to have three tons on when it was wet. He also bought a great deal of guano and lime. The neighboring farmers said he would break in buying so much manure, but I noticed he left them away behind. I remember there was a field of grass,—about six acres, more or less,—and he had six cows on it which he fed three-fourths of a pound of oil meal every morning in grass time, and the figures which I copied from his farm book show that in nine months the cows brought him in milk, butter, and veals a total of £195 2s. 1d., or an average per cow of \$150. In the fall the grass on that piece was so thick he wished it eaten off clean, and he sent to my brother for some sheep to eat it, and when they were taken off it was better than when they were put there. How much better to have 80 or 160 acres in good heart like that than one-half or a whole section of land yielding about half a crop.—*Correspondent Breeders' Gazette*.

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, J. T. Willard; Vice-President, Minnie Reed; Secretary, Marie Senn; Treasurer, C. H. Thompson. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, W. H. Phipps; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halstead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. G. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, One Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice-President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donaven; Treasurer, John Patten; Critic, M. F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell, D. S. LaSalle, J. A. Soehel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Knickerbocker; Vice President, Elsie Crump; Recording Secretary, Lorena Helder; Corresponding Secretary, Florence Corbett; Treasurer, Ellen Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

November 18th.

As the hands of the clock pointed the hour at which the Ionians usually meet, the house was found well filled. After President Knickerbocker called the Society to order, all joined in singing the opening hymn. Miss Lyman then led the devotional exercises. The program was opened with a well rendered solo reading by Miss Patten, entitled "Our Hattie." This was followed by the old-time favorite, "Anne Laurie," sung by Miss Lyman, with guitar accompaniment. The Society then took part in answering, extemporaneously, questions concerning Robert's Rules of Order, as asked by Miss Lyman. Miss Frisbie presented an interesting edition of the Oracle, having for its motto "Variety is the Spice of Life." This motto was well followed out, especially in the political selections, there being a Democratic, an Alliance, and a Republican piece. Among other pieces worthy of notice may be mentioned the following: "An Answer to Grandma Elsper's Letter," "A Crazy Tea-party," and "Our Gardens." The news of the week as selected by Miss Hall was also found in this edition. This was followed by an instrumental duet, mandolin and guitar, by Misses Walters and Mudge. The ladies responded to an encore. On account of a mis-understanding concerning the debate, a discussion was given in its place, by Miss Hayes, with Chinese Emigration for her subject. Other members of the Society followed her lead, and quite an interesting as well as beneficial discussion was the result. Miss Norton then read a piece of poetry composed by Miss Corbett, that lady not being present. After this, Miss Wilson favored the Society with an instrumental solo, which closed the program. The usual routine of business was then gone through with, and this was followed by the report of Critic, general criticisms, and assignment of duties. Roll-call with well selected quotations then closed one of the most interesting and beneficial sessions of the term. E. D. M.

November 18th.

In the absence of both President and Vice-President, C. H. Thompson was called to the chair and wielded the Alpha Beta gavel with dignity. After singing and prayer, Miss Parkinson, Secret, and Havens were administered the obligation of membership. Mr. Havens' declamation and an essay by Miss Elsie Waters were followed by a discussion of the question, "Resolved, that Prohibition is the Greatest National Issue of the Day," Miss Hulett and Mr. Jones affirming and Mr. Abell and Miss Steele denying. The affirmative claimed that intemperance was the source of more evil, individual and national, physical, mental, and moral, than all other things. Upon the personal life of the individual the life of the nation depends. Our government was organized for the promotion of the general welfare. Society and not the man is the unit, and no person as a part of society has a right to do that which is detrimental to himself, and thus dangerous to society of which he is a part. We are our brother's keeper. The negative thought that labor and capital are questions of more importance. Poverty, not liquor, leads to intemperance, vice, and crime. We have as much right to prohibit the use of tea and coffee as other drinks. Many of the world's greatest men use liquor in some form, and would never submit to others dictating what they might or might not eat or drink. Banish in quality and poverty through just legislation, giving all an equal chance to enjoy the fruits of their labor, and intemperance will cease. Judges Lyon, Palmer, and Gardiner decided in favor of the negative. Mr. Buck presented the Gleaner. After recess, W. O. Lyon, auctioneer, sold an old society book at public auction. Bids ranging from a stick of chewing gum and a hair-pin to twenty cents were made. The book was sold to C. H. Thompson, the highest bidder. Roll-call showed about forty members present. W. H. P.

The boys of the country will soon see that they can make more by staying at home than by running off to town. The farm is a far better place than the city, and the farm of the future will be coveted by the people of the cities. As it is, our farmers' boys, if they will use on the farm the same study, brains, and energy which enables them to live from hand to mouth, as it were, in the city, can make a success of it and can grow up into a life of independent manhood such as they can enjoy nowhere else. The farmer of to-day has most of the advantages of the city. He lives better than his city brother, and, with his books and his papers, he has the leisure to live an intellectual life which his city brother cannot have.

Secretary Rusk.

When the Lick telescope was completed it was announced to be certainly the largest that would be constructed in America for years to come. But a man who has made money in street railways, Mr. Charles T. Yerkes, of Chicago, has already given the order for a telescope for the Chicago University that will be the greatest one ever made anywhere. The telescope record did not remain stationary much longer than the trotting record. The object glass of the Yerkes telescope will be forty-five inches across—eleven inches larger than the Lick telescope. But the tremendous glass can never be used to full advantage till Chicago gets rid of her frightful coal smoke.

In England, farming is considered a business that must be learned as well as anything else. A man without experience would have difficulty in renting or leasing a good farm there, no matter how much capital he might have, and again, no matter what his experience, he could not lease unless he could show capital enough to stock and operate it properly. Here it is sometimes different.

—*Harper Sentinel*.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

VARNEY'S BOOKSTORE.—Popular Headquarters for College Text-Books and Supplies. Second-Hand Books often as good as new. Call when down town, Always glad to see you.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler." Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, Jewelry, and Gold Spectacles, also Musical Instruments. '75.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silver-ware, Spectacles, Clocks, Fountain Pens, Gold, Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

D. R. G. A. CRIST, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

D. DEWEY, the photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue.

BOOTS AND SHOES.

R. E. LIABLE Boots, Shoes, and Rubbers, direct from the leading eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

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PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special Sattennings will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

S. HULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore; or give orders to delivery wagon.

SHAVING PARLOR.

6 BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

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THE SPOT CASH STORE is Headquarters for Dry Goods, Nations, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

E. B. PURCELL, owner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, DECEMBER 3, 1892.

NUMBER 15.

THE INDUSTRIALIST.

PUBLISHED WEEKLY
BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY STUDENTS.

Historical Society FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Application for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

THE MORRILL BILL AND THE ENDOWMENT.

BY PROF. J. D. WALTERS.

THE so-called "Morrill Act," to which the Kansas State Agricultural College owes its endowment, was passed in a most critical period of our national life, and its history is interesting to the student of American institutions from more than one point of view.

The annexation of territory as the result of the war with Mexico had added millions of acres of wild land to the large public domain of the United States. At the time of the election of James Buchanan to the Presidency, the national government still had at its command, with constitutional right of disposal, nearly a billion and a half acres. It had not yet squandered an empire to scheming railroad companies, though petitions began to pour in, begging for grants for various public and private interests. Agricultural societies throughout the Union, seemingly in concerted action, followed the clamoring multitude by asking for the donation of public lands to the States for the purpose of agricultural education. The agitation took formal shape as early as 1852, when the Legislature of Massachusetts passed a resolution asking Congress for a grant of lands for the purpose of promoting a "National Normal College," as they styled it, and similar propositions, urging that the nation should promote scientific instruction in agriculture, in order to preserve the chief industry of the country, soon came from many sides. It was claimed that the prevailing methods of agriculture were rapidly exhausting the soil, while weeds, insect pests, blights, and mildews were over-running gardens, fields, and orchards.

In 1858 memorials were presented in Congress from the Kentucky and New York Agricultural Societies, and from the Legislatures of New York, California, and Missouri, praying for lands for educational purposes in State Agricultural Colleges. Hon. Justin A. Morrill, of Vermont, in speaking of this subject before the House of Representatives on April 20, 1858, said, "There has been no measure for years which has received so much attention in the various parts of the country as the one now under consideration, so far as the fact can be proved by petitions which have been received from various States, North and South, from State societies, county societies, and from individuals. Petitions have come in almost every day from the commencement of the session."

The bill then before Congress, granting land to the States for Agricultural Colleges, upon which Mr. Morrill spoke these words, was almost identical with the one which became a law four years later. It was introduced and brought to its passage in the House. The main difference between it and the one which finally won success was that the former granted only 20,000 acres of land for each Senator and Representative in Congress, instead of 30,000, finally allowed. Temporary loss resulted, as it does so often, in permanent gain. The first bill passed the House April 22, 1858, and was endorsed by the Senate at the following session, but it met the veto of President Buchanan, February 24, 1859.

The veto message adopts the view of the timid school of interpreters of the Constitution, and sets forth the obstacles which the friends of national aid to education and the public school system had to encounter a generation or two ago. It rested mainly, like the well known veto of the Homestead Bill a year later, upon constitutional grounds. He urged the minor objections that such a measure was inexpedient in cutting off \$5,000,000 of revenue at a time when it was difficult to meet the

expenses of the Government and to sustain public credit; that it would be injurious to the new States in enabling speculators, who might buy the land scrip to withhold their land from settlement, and thus run up the price to the actual settler; that the Government would have no power to follow into the States to see that it was properly executed, and that such a donation would interfere with the growth of established colleges. "It would be better," says the message, "if such an appropriation of land must be made to institutions of learning, to apply it directly to the establishment of professorships of agriculture and the mechanic arts in existing colleges, without the interference of State Legislatures."

Undoubtedly some of the reasons were strong ones. The history of several of the agricultural schools, where the land was foisted away to land speculators, and the proceeds given to classical institutions, vindicated a number of them only too well, but they were posed simply to furnish a background to his main objection. He believed that the proposed grant violated the Constitution of the United States. He presumed it "undeniable that Congress does not possess the power to appropriate money in the Treasury, raised by taxes on the people of the United States, for the purpose of educating the people of the respective States. This would be to collect taxes for every State purpose which Congress might deem expedient and useful—an actual consolidation of the Federal and State Governments." The power specifically given to Congress "to dispose of the territory and other property of the United States" was to be used only for the objects specifically enumerated in the Constitution. At least the public lands could not be "given away." He believed that the previously made donations of the sixteenth sections, and later of the thirty-sixth sections for common schools, and of townships for universities and seminaries, were safely constitutional; but in these transactions the Government had not "given away" land: it had merely acted as a prudent speculator in "disposing of" some land in order to enhance the price of the balance. The message "purposely avoided any attempt to define what portions of land may be granted and for what purpose, to improve the value and promote the sale of the remainder without violating the Constitution."

"Where there is a lack of argument against a measure," said Mr. Morrill, while facing the veto of his bill, "the Constitution is fled to as an inexhaustible source of supply." There was nothing left, though, but to re-introduce it in the House of the Thirty-ninth Congress, where it was again unfavorably reported by the Committee on Public Lands.

In the meantime, however, the measure had found a champion in the person of Senator Wade, of Ohio, and on May 5, 1862, this gentleman introduced in the Senate the bill which, after much opposition, finally became a law. It was postponed and delayed in various ways. Even our Kansas Senator, "Jim" Lane of Leavenworth, objected to it because it would, as he thought, exhaust all the valuable public land in his State; and in this he was generally supported by the press. The redeeming feature of Senator Lane's opposition to the bill was his unflinching belief that Kansas was "the only State with desirable public lands within its borders," and that, in case the bill should become a law, all other States from New Jersey to Illinois would rush to Kansas to take up her beautiful prairies. Mr. Lane finally fell back on the constitutional objection and warned the Senate against the danger of "giving

to sovereign States the right of entering lands within the sovereign States." Unable to defeat the bill, he and his coadjutors made a fight for the amendment that no more than 1,000,000 acres of the land should be located in any one State by assignees of the lands, and in this they were successful.

The bill, as amended by the Kansas Senator, passed the Senate June 10, 1862, the House one week later, and became a law on July 2, 1862, by receiving the signature of President Abraham Lincoln. The act gives to each State lands to the amount of 30,000 acres for each Senator and Representative in Congress for "the endowment, support, and maintenance of at least one College for the benefit of agriculture and the mechanic arts." Under it, Kansas received 82,313.52 acres, and the fund derived from the sale of these amounts to \$502,927.35. In a future article, the INDUSTRIALIST will give the history of the endowment with regard to the State Legislature.

COMMENTS ON OUR RECENT STEER-FEEDING EXPERIMENTS.

BY PROF. C. C. GEORGESON.

ONE would suppose that the steer which is fattened at the least cost per pound of gain would in all cases be the most profitable. This is the view that feeders generally take of the case. But is this proposition always and invariably true? Bulletin 34, which details last winter's feeding experiments at this Station, brings out some curious facts bearing on this case. Anyone can deduce them from the gain and cost of feed of each lot as there recorded, as I have done in the table below. This table shows the gain and cost per pound of gain by periods for each lot of steers, and also the total gain from the beginning of the experiments to the end of each successive period, and the cost per pound of that gain. The feeding began November 30th and closed May 30th, covering altogether exactly 26 weeks. These 26 weeks are divided into seven periods. Periods 1 to 6 inclusive cover 28 days each, or four weeks, but the 7th, and last, period covers only 14 days. Each lot contained five steers which, were fed as follows: Lot 1, "Balanced Ration," (corn meal, oil meal, shorts, and bran). Lot 2, corn meal. Lot 3, ear corn. Lot 4, ear corn. Lot 4 was fed out doors; the other three lots were tied up in the barn. Here are the comparative results:—

LOT 1—FEED, "BALANCED RATION."

Number of Period.	Gain during the period—lbs.	Cost of feed per lb. of gain—cts.	Gain from beginning of gain exp. Nov. 30 to date ginning to date—lbs.	Cost of feed per lb. of gain exp. Nov. 30 to date ginning to date—cts.
1—Nov. 30 to Dec. 31	388	5.29	878	4.94
2—Dec. 28 to Jan. 25	490	4.66	1368	5.51
3—Jan. 25 to Feb. 22	335	7.00	1703	6.01
4—Feb. 22 to Mar. 21	305	8.04	1518	6.50
5—Mar. 21 to Apr. 18	285	9.06	1803	6.72
6—Apr. 18 to May 16	334	7.90	2135	6.72
7—May 16 to May 30	43	26.18	2178	7.11

LOT 2—FEED, CORN MEAL.

1—Nov. 30 to Dec. 28	68	23.00	.....	6.74
2—Dec. 28 to Jan. 25	403	4.00	471	6.90
3—Jan. 25 to Feb. 22	243	7.22	714	6.58
4—Feb. 22 to Mar. 21	210	7.41	924	7.01
5—Mar. 21 to Apr. 18	137	11.62	1061	7.61
6—Apr. 18 to May 16	225	7.26	1286	7.55
7—May 16 to May 30	54	15.30	1340	7.88

LOT 3—FEED, EAR CORN.

1—Nov. 30 to Dec. 28	287	6.07	.....	5.49
2—Dec. 28 to Jan. 25	320	4.95	607	6.58
3—Jan. 25 to Feb. 22	163	10.62	770	6.58
4—Feb. 22 to Mar. 21	189	7.93	959	6.84
5—Mar. 21 to Apr. 18	177	8.58	1136	7.12
6—Apr. 18 to May 16	267	5.86	1403	6.88
7—May 16 to May 30	18	41.66	1421	7.34

LOT 4—FEED, CORN IN YARD.

1—Nov. 30 to Dec. 28	346	5.71	.....	6.52
2—Dec. 28 to Jan. 25	257	7.61	603	6.52
3—Jan. 25 to Feb. 22	246	8.64	849	7.12
4—Feb. 22 to Mar. 21	300	6.13	1149	6.87
5—Mar. 21 to Apr. 18	7	259.00	1156	8.39
6—Apr. 18 to May 16	167	11.48	1323	8.78
7—May 16 to May 30	241	4.57	1504	8.05

I would call attention especially to the two last columns, one of which gives the gain from the beginning of the experiment to the end of each period, and the other the cost of that gain per pound in cents and mills. It will be noticed that lot 1 gained more rapidly than any of the others, and that the relative cost of that gain is less than in

any of the other cases. In every single instance the gain of lot 1 has been made at a cheaper rate than has the gain of any of the other three lots for the corresponding periods. It would then be reasonable to suppose that that lot would bring the best returns; but the account given on page 90 of the bulletins shows that such is not the case. The explanation is that all the steers were fed at a loss, and that lot 1, having made a greater gain than either of the others, it represented also a greater loss. This is true, moreover, only in comparison with lots 2 and 3. Lot 4, which was fed in the open yard, consumed more food for the gain made than did the others, and the cost per pound of gain was correspondingly higher, this lot therefore represents the heaviest loss.

The steers were sold on a very dull market. Lot 1 brought \$4.20 per hundred, and the other three lots \$4.10. On a market that would allow a profit to the feeder the heaviest steers if they had also made the cheapest gain would, presumably, yield the best profit. This is, however, not necessarily true until the price realized equals the cost of gain, and that is very rarely the case. The profit in feeding does not accrue from the weight put on in the feed lot. It comes from the increased value of the entire carcass, which may thus be raised from one to two or more cents per pound. It follows that the heavier the steers are when the feeding begins, other things being equal, the greater the likelihood that the operation will leave a margin for the feeding. Suppose this case: Two lots of feeders are bought in the market. One lot averages 1000 pounds and costs \$3.25 per cwt., or \$32.50 per head; the other averages 1300 pounds and costs \$3.50 per cwt., or \$45.50 per head. Such sales may be noted any day. Here is a difference of \$13 in the value of each head. If both lots are equally thrifty, it will take about the same amount of feed to produce a given gain, say 300 pounds, and these portions of the account will therefore balance each other. Both are marketed in good condition, the small steers weighing 1300 pounds, and the large steers 1600. It is fair to assume that if the small steers bring 5 cents a pound, the large ones will bring 5 1/4. At these rates the small steers bring their owner \$65 a head, which allows him \$32.50 for the feed. The large ones bring \$84 a head, allowing \$38.50 for the feed. The difference in profit of \$6 is made on the 300 pounds excess in weight over the small ones at the start. The feeder, therefore, who buys his cattle in the open market will generally do best if he chooses heavy cattle.

It is different with the man who raises his own steers. He wants to realize on them in the shortest possible time, and it is to his interest to put them in marketable condition as soon as practicable. The point I wish to emphasize is that it is vain to hope to make any profit on the gain made in the feed lot. The cases in which the price per pound obtained equals the cost per pound of that gain are few and far between.

Another point of interest in the above table is the steady increasing cost of the gain as the feeding progresses, as seen in the last column. The longer the feeding continues the more expensive the gain is. It follows that there is no profit in protracting the feeding beyond the period when a good marketable condition is reached, unless there is a corresponding increase in price of the steers, which is not always the case.

Lot 1 brought \$4.20, as stated already. It should have brought \$4.51 in order to cover cost. Lot 2, 3, and 4, which brought \$4.10 should have brought \$4.34, \$4.33 and \$4.61 respectively to cover cost of feed. The prime condition of lot 1 brought no corresponding increase in their price. They would have sold as well on the same market two months earlier, at a time when the feed had cost nearly a cent less per pound of gain.

MEMORIES.

BY VERTA CRESS, '94.

THIS memory of ours is a very serviceable faculty, for which we all should be thankful. It keeps us constantly on the watch, and now and then rouses us into action by cheering the sad heart and smoothing out the wrinkles in our foreheads. Very often it vexes us, for it is human nature to allow the mind to be occupied with sad thoughts. Why not give it the power to carry us whither it will, as it may serve as a rest and perhaps create a bright spot in this monotonous, every-day routine of college life?

Once more in childhood's happy home we are driving the old turkey all over the farm; or climbing the haymow for eggs, when suddenly and very unexpectedly we descend from our high pinnacle through an opening just large enough to admit the little slender body. As old Dobbin never kicks, we kindly pick ourselves up, and soon we are off on a nutting expedition. Home again helping mother with dinner, blowing the old dinner horn for father, then away once more, romping in the clover, chasing butterflies, and playing with old Rover, until the sun slowly sinks behind the western hills, and the cattle are driven home. Memory refuses to allow us to linger here, for too well she knows volumes, yes, and even libraries could never begin to tell the pleasant story.

Ten years, rolling slowly but surely by, reveal innumerable changes in this strange, sweet panorama of our early life, for now the little one is transformed into a scholar striving to reach the summit of the hill of knowledge. Slowly and painfully removing the stones and briars which impede his way, he plods onward and enters college. Proudly carrying the assignment the President gave him, he enters the First-year class. He shares in the trials and tribulations of being called a "horrid prep," which wounds the proud and honest heart, but such is college life. Slowly at first, and yet too quickly, this year passes, and many are the memories of the kindnesses of our thoughtful professors and the many happy hours in our favorite society.

But no sooner is this over than the Sophomore difficulties begin. Amusing indeed is the memory of the first gestures made in the rhetorical class, and how our voices trembled when we were told to give the inflections on "It must be so, Plato; thou reasonest well." Soon enormous chemistry aprons entirely conceal from view the chemists with scorched hair and blistered fingers. Joys entirely over-balance the sorrows at the Second-year party, and continue the rest of the year. Spring, which for the Freshman brings the flowers, for the Sophomore brings the insects. Every poor guiltless Carabidae to be found is instantaneously thrust into a bottle, where it painlessly breathes its last. The girls grow brave and daring, and even handle these small individuals without many outward signs of fear. But this, as well as the year before, draws to a close and the third-year, with all its toil, presses down hard upon us.

Trying it is to brace up against it, and, although the body does often seem weak, the spirit dares not lag. The Third-year party brings joy into this, the hardest year, and inspires us to do better. Here we must leave you, for memory reminds us that we, too, are Third-years, and lessons must be learned because they rank as the highest of our present duties.

An exchange states that the first agricultural experiment station in the United States was established at Wesleyan University in 1875. The establishment of the Station at that time and place is not questioned, but we would suggest that this was not the first by any means. In proof we quote from Bulletin No. 1 of the Kansas Experiment Station: "The Kansas State Agricultural College has, ever since its foundation in 1863, recognized agricultural experimentation as a part of its legitimate work. So far as the funds of the College and the appropriations of the State Legislature have allowed, the constant effort has been to aid in the development of the State by increasing our knowledge of its agricultural capacities by means of carefully conducted experiments."—Topeka Capital.

CALENDAR.

1892-93.

Fall Term—September 15th to December 22d.
 Winter Term—January 9th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Commencement.
 1893-94.
 Fall Term—September 14th to December 22d.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Superintendent Thompson went to Randolph yesterday on business.

Miss Mae Brooks, of Ames, Kansas, visited College Monday with Elsie Crump, Third-year.

Professor and Mrs. Hitchcock are to be congratulated upon the advent of a second son in their family.

Mrs. Kedzie gave her lecture on New Orleans last night in the High School course at Downs, Osborne County.

Professors Popenoe, Georgeson, and Mayo attend a Farmers' Institute this week at Louisville, Pottawatomie County.

Mr. John Breusier, of Pennsylvania, visited College yesterday, in company with B. A. Knox Second-year in 1890-91.

Professors Walters and Mason will represent the College at the State Horticultural Society's annual meeting at Winfield this week.

Miss Mattie Cooper, of Russell, and Miss Annie Cooper visited College Monday in company with Miss Lillie Oldham, student last year.

Secretary Martin Mohler of the State Board of Agriculture visited the College yesterday for consultation as to aid in the annual meeting of the Board in January.

Messrs. Cross and McHardy, of Emporia, were interested visitors to the College yesterday afternoon, giving special attention to the stock and apparatus of the farm.

The names of Professors Georgeson and Graham appear upon the programme of the Annual meeting of the State Dairy Association, to be held at Topeka December 16th and 17th.

The janitor's duties are for the present performed by Mr. Frank Davis, who has been fireman since November 1st, with the aid of advanced students who are familiar with the work.

Mrs. Buck, of Hill City, Kansas, spent several hours yesterday in looking over the various departments of the College, being especially interested in the various Industrial Departments.

Rev. Brackney, of Phillipsburg, made a hurried visit to the College on Wednesday morning. Mr. Brackney is a Trustee of Emporia College, and greatly interested in educational questions.

Prof. Mason made a successful trip last week through Southern and Eastern Kansas, collecting some fine specimens of Kansas forest growth. He will this week make Cowley County a center of explorations.

Mr. Potts, whose Illinois herd of Shorthorns, has a world wide fame, visited the College last week with a view to securing the head of the College herd, Imp. Craven Knight, for the head of his noted herd.

Secretary Graham and Prof. Hood presented the subject of Industrial Education at Silver Lake last evening, uniting with the Secretary's lecture an exhibition of College buildings, grounds, and work by the magic lantern.

Miss Lilia Harkins, Professor of Household Economy at the State Agricultural College of S. Dakota, has begun her third winter course here, hoping to receive next June the degree of M. Sc. for proficiency in Household Economy and Chemistry.

Mr. A. C. McCreary, Janitor for five and a half years past, found it necessary on account of serious facial neuralgia that would not yield to any treatment, to seek change of climate, and yesterday left for Santiago, California, hoping by residence there to recover his health. Mr. McCreary has won the high regard of all connected with the College by his energy, good-will, and

ingenuity, making him a model janitor. This regard, coupled with sympathy for his misfortune, found expression yesterday in a gift from officers of the College amounting to nearly one hundred dollars to cheer his lonely journey. His family remain for the present in Manhattan.

Prof. L. C. Wooster, Manager of the Board of Directors of the Kansas Educational Exhibit at Chicago, addressed the students a few minutes in Chapel Friday morning upon the importance of that exhibit, and spent the forenoon in consultation with members of the Faculty upon the work of the College in the Exposition.

The Alpha Beta Annual Exhibition, one of the main entertaining features of the fall term of each College year, will be given in the chapel next Friday evening. A carefully prepared programme insures a grand treat to all who desire to attend, the exercises being public.

The lecture in chapel yesterday afternoon was given by Prof. A. B. Brown, which was an instructive discourse on time as embodied in the acts of life, including its significance in the arts of music and poetry. The lecture was suitably illustrated by the pendulum, musical charts, blackboard exercises, and other devices.

Two hundred and fifty photographs of scenes in and about College buildings and grounds are spread on tables in the studies that students may select for purchase such as suit their fancy. A sliding scale of prices has been made, as follows: Single view, 20 cents; 2 for 35 cents; 3 for 50 cents; 7 for \$1.00; 16 for \$2.00; 12½ cents each for greater number. These prices barely cover the cost of the photographs.

An interesting game of foot-ball between First and Second-year teams was witnessed by a large number of students at the City Park yesterday afternoon. After a hard-fought contest between the evenly matched sides, the game resulted in a tie of four points. Following is a list of players and positions:—

SECOND-YEARS.	POSITION.	FIRST-YEARS.
C. H. Paul	Full back	F. M. Aiman
B. M. Brown	Right half back	L. P. Holland
E. R. Farwell	Left half back	E. Poston
A. D. Benson	Quarter back	B. W. Vickery
F. A. Dawley	Center rush	W. S. Forsythe
W. H. Painter	Right guard	C. Lyon
W. B. Conrad	Left guard	F. B. Dodds
G. Dial	Right end rush	R. W. Henney
C. A. Johnson	Left end rush	R. R. Forsythe
F. J. Smith	Right tackle	C. N. Kenyon
J. V. Patten	Left tackle	W. C. Phillips

GRADUATES AND STUDENTS.

E. S. Mudge, Third-year in 1890-1, visits College today.

Louise Reed, '91, spent the week at College with her sister and friends.

A. D. Rice, '92, will soon teach in a new school-house near Randolph.

Christine Corlett, '91, opens a five-months' school at Cleburne on Monday next.

Emma Adams, student this term, is clerking for the E. B. Purcell Mercantile Company.

A. D. Fink, First-year in '83, is prospering in the harness and saddlery business in Jewell City.

P. S. Creager, '91, Agricultural Editor of the Topeka *Weekly Capital*, is visiting the College today.

W. P. Tucker, '92, visited with College friends at the meeting of the Webster Society Saturday evening.

S. C. Harner, '90, and S. N. Chaffee, '91, take part in the teachers' meeting at Leonardville today.

C. J. Peterson, Fourth-year, attended sessions of the Teachers' Association held at Junction City last week.

W. O. Peterson, Second-year student, was in Junction City Friday and Saturday to attend the North Central Teacher's Association.

E. L. Platt, Second-year in 1891-2, was a visitor at College this week. He is agent for the Remington Typewriter in St. Joseph, Mo.

Cards received announce the Marriage of Julia Greene, Second-year in 1889-90, to Mr. Lewis E. Eddy, on November 10th, at Lecompton.

Geo. L. Keener, First-year in '82, is getting rich in the operation of his gold mine at Cripple Creek,

Colo. He resides with his family at Colorado Springs, but still holds onto his Kansas farm as a good thing to have in the family.

Ben Skinner, '91, has been lying seriously ill with typhoid fever for four weeks past. He still retains his bed, but hopes for rapid recovery.

S. L. VanBlarcom and E. C. Coburn, '91, ate their Thanksgiving turkey with their classmate F. A. Waugh at his home in McPherson County.

Frank W. Bevington, Second-year in 1882, and F. E. Ruggles, First-year in '81, are partners in the management of a big hardware business in Jewell City.

A. O. Wright, '91, has purchased an interest in the *Herald* of Lake Arthur, La. P. M. Kowan, Third-year in 1885-6, retains an interest in the business while engaging in the publication of another paper at Jennings.

J. W. Berry, '83, and Hattie Peck-Berry, '84, are happy and prosperous in their Jewell City home. Mr. Berry is one of the largest contractors and builders in his portion of the State, and is now occupied in the erection of a large flouring mill at Beloit.

Darwin S. Leach, '81, after several years of service as Principal of Schools in Georgetown, N. M., spent some time in South America, and has now become a resident of Africa. What Leach does not manage to see of this world will be something hard to reach.

Jno. U. Higinbotham, '86, has severed his connection with the Kenwood Manufacturing Co., and will hereafter be in the employ of the Chicago Gas Light and Coke Co., with home address at No. 2 East Madison Street. From bicycles to gas is quite a jump, but he says the latter is better suited to his abilities.

W. C. Palmer, student in 1880-1, continues to hold down the editorial chair of the Jewell County *Republican*, and to rake in the consequent dollars. His interest and pride in this College does not abate, though business cares caused him to sever his connection with it much earlier than he would have liked.

SCIENTIFIC CLUB.

November 25, 1892.

The Scientific Club was called to order by President Willard. The minutes of the last meeting were read, corrected, and adopted. An inaugural address by President Willard followed. Under the order of business, it was moved that a committee be appointed to consider the best means of promoting the welfare and usefulness of the Club, said committee to report in one week at a called meeting of the Club.

Prof. Nichols then read an interesting paper on "Method of Determining the Horizontal Intensity of the Earth's Magnetism." Two operations are necessary in determining the horizontal intensity of the earth's magnetism: (1.) The angle through which a magnetic needle is deflected by a magnet placed in a given position and at a given distance from it. (2.) The period of vibration of the magnet when suspended horizontally in the earth's field. The first operation gives the ratio of the magnetic moment of the magnet to the horizontal component of the earth's magnetism. The second, the product of these two quantities.

It is best to use several magnets to reduce the error as much as possible. In the experiments described, twelve knitting needles were used, four of each size, whose diameters in millimeters were 1.97, 1.62, and 1.12; the length of each being about 21 centimeters. These were placed magnetically east and west of the magnetic needle, the distance between the center of the needle and magnets being taken at 60 and 80 centimeters. The magnets were reversed in each position, thus giving eight deflections for each magnet.

The mean of each set of four readings was taken as the angle of deflection at 60 and 80 centimeters. The oscillations of the magnets required in the second operation were taken by means of a second's pendulum and chronograph. In the final formula used, H is equal to the fraction whose

numerator is $5 \cdot 13 l$ into the square root of rw , and the denominator t into the quantity r square minus l square into the square root of tangent a , where H represents the horizontal intensity, l the half length of the magnet, t the time in seconds, r the distance from center of needle to center of magnet, w the weight of the magnet, and a the angle of deflection. If r and l are taken in centimeters, t in seconds, and w in grams, then H will be in dynes. The mean of these twenty-four results, two with each magnet, was .21,888. The highest result was .22,026, the lowest .21,385. The horizontal intensity at Boston is .172, Washington, .200; Chicago, .184; San Francisco, .255; and New Orleans, .281.

Prof. Hood was called to the chair.

Under the title of a "Breathing Well in Logan County" Prof. Willard described a bored well situated in Winona which blows out air at times and draws it in at other times. A careful comparison of the movement of the air with the vibration of the barometer showed conclusively that the movement is dependent upon atmospheric pressure. With a rising barometer, air is forced into the well. With a falling barometer, the excess of pressure of the subterranean air reservoir forces air out. The air reservoir is probably a bed of gravel or sand not saturated by water.

After some discussion, the Club adjourned.

MARIE B. SENN, Sec'y.

POTENT LITTLES.

The farmer who makes his business pay is the man who finds his profits in things so small as not to be considered worthy of notice by the majority of our people. It is a quarter saved here, a dime there, and a nickel somewhere else. All successes, no matter what their character, are found precisely the same way. Take the great packeries, for example. If those packeries worked on the plan usually pursued by a farmer when he butchers an animal, every one of them would fail; but they don't. Everything is saved and turned into money; the blood, the hair, the bones, and every form of offal that results. The income from any one of these things might be exceedingly small, but the income from them thrown together foots up to considerable proportions in the end, really making the main profits of the plant.

Many a farmer who, through a long life, has barely made ends meet, has wasted enough in the things on his farm too insignificant to be considered worthy of dignified attention, to have made him a rich man. Not long ago we called on a prosperous farmer, and while his folks were getting the dinner on the table, he took us out into his garden to show us his Irish potatoes, onions, and so on. A short row of butter beans ran across the garden. They were green and heavy in foliage, but had passed their bearing season. As he talked with us he pulled those vines down from their poles and spread them out to cure as hay. Next day, probably, when he went past the barn from his dinner he carried that hay along in his arms, housed it without the loss of a moment, and had at least one good feed for a cow. That's the way to do it.—*Mobile Register*.

THE WEATHER FOR NOVEMBER.

BY PROF. E. R. NICHOLS.

Temperature.—The mean temperature for November 1892 was 39.77° , which is $.13^{\circ}$ above normal. There have been fifteen warmer and eighteen cooler Novembers in the past thirty-five years. The lowest temperature reached during that time was -9° , in 1887, and the highest, 86° , in 1891. The highest temperature for the month was 72° , on the 12th; the lowest, 13° , on the 8th,—a monthly range of 59° . The warmest day was the 12th, the mean being 56° ; the coldest was the 21st, the mean being 26° . The greatest range for one day was 46° , on the 12th and 29th; the least, 4° , on the 2nd. The mean of the observations at 7 A.M. was 31.2° ; at 2 P.M. 52.07° ; at 9 P.M. 37.9° . The mean of the maximum was 54.33° ; of the minimum, 27.53 , the mean of these two being 40.93° .

Barometer.—The mean pressure for the month was 28.904 inches, which is 0.1 inch above the mean for twenty-one years. The highest pressure was 29.322 inches, at 7 A.M. on the 21st; the

least, 28.476 inches, at 7 A.M. on the 15—a monthly range of $.846$ inches.

Rainfall.—The total precipitation was $.65$ inch, which is $.72$ inch below normal. The rain on the evening of the 16th changed to snow near morning, there being about an inch of snow, which disappeared by noon.

Cloudiness.—There were three days entirely cloudy; one, five-sixth cloudy; two, two-thirds cloudy; three, one-half cloudy; six, one-third cloudy; two, one-sixth cloudy; and thirteen clear. The per cent of cloudiness for the month was 30, which is 10 below normal.

Wind.—The wind was from the southwest fifteen times; northwest, thirteen times; south and southeast, nine times each; east and north, eight times each; west and northeast, seven times each; and a calm fourteen times. The total run of wind for the month was 7955 miles, giving a mean daily velocity of 265.17 miles, and a mean hourly velocity of 11.05 miles. The highest daily velocity was 570 miles, on the 25th; the least, 94 miles, on the 30th. The highest hourly velocity was 43 miles, from 12 M. to 1 P.M. on the 25th.

Below will be found a comparison with the preceding Novembers:—

November.	Number of rains.	Rain in inches.	Per cent Cloudiness.	Prevailing Wind.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	9	.69	...	...	38.81	58	11	...	...	...
1859	2	1.20	69	S	45.48	84	10	...	...	...
1860	4	1.58	37	NW	36.93	68	10	...	...	...
1861	2	.70	36	NW	42.26	74	16	...	...	...
1862	3	1.70	37	N	43.42	72	23	...	...	...
1863	4	2.23	34	SW	38.61	68	1	...	...	...
1864	4	1.61	41	N	36.20	58	10	...	...	...
1865	...	...	...	...	...	...	...	...	...	...
1866	3	1.37	34	W	45.65	81	20	...	...	...
1867	2	.49	27	W	44.48	96	7	...	...	...
1868	5	2.17	47	SW	38.08	62	16	...	...	...
1869	5	1.19	52	SE	36.88	65	20	28.77	29.20	28.30
1870	2	1.3	23	SW	44.80	74	17	...	...	...
1871	5	1.96	54	SW	36.90	72	4	...	...	...
1872	0	.00	40	NW	33.68	70	22	...	...	...
1873	2	.82	40	SW	41.63	79	12	28.71	29.06	28.17
1874	5	2.12	58	SW	38.59	78	3	28.77	29.28	28.00
1875	3	.34	53	SE	35.97	70	-2	28.81	29.45	28.32
1876	2	1.75	52	NW	37.15	70	0	28.85	29.50	28.36
1877	6	1.90	53	NW	38.70	65	2	28.80	29.31	28.45
1878	2	1.90	38	NE	43.44	75	15	28.77	29.12	28.25
1879	6	7.83	45	S	42.72	70	15	28.63	29.25	28.18
1880	4	1.97	50	SW	31.69	67	7	28.74	29.21	28.17
1881	3	1.86	43	SW	39.24	68	7	28.70	29.11	28.17
1882	3	.95	42	SW	40.56	79	15	28.79	29.09	28.39
1883	1	.30	33	SW	41.45	69	11	28.69	29.23	28.06
1884	2	1.07	40	N	42.33	70	12	28.60	29.80	28.16
1885	1	.19	21	SW	42.78	84	22	28.63	29.02	28.43
1886	2	1.24	32	SW	39.09	79	12	28.52	29.35	28.34
1887	1	.29	32	N	40.85	85	-9	29.10	29.60	28.69
1888	2	.94	32	N	37.33	78	14	29.05	29.47	28.61
1889	4	2.23	42	N	35.17	66	11	29.03	29.52	28.51
1890	2	.91	30	SW	41.94	76	16	29.02	29.58	28.49
1891	5	.26	38	SW	38.69	86	8	28.93	29.51	28.41
1892	1	.65	30	SW	39.77	72	13	28.90	29.32	28.48
Means...	3	1.37	40	SW	39.64	73	10	28.80	29.29	28.33

WIND RECORD.

November.	Total Miles.	Mean Daily.	Maximum Daily.	Minimum Daily.	Mean Hourly.	Maximum Hourly.
1889	5477	182.84	344	47	7.62	26
1890	5938	197.93	334	51	8.25	26
1891	7988	264.60	529	64	11.03	36
1892	7955	265.17	570	94	11.05	43
Means	6827	227.64	444	64	9.49	33

COLLEGE ORGANIZATIONS.

November, 25th.

The Ionian society was called to order by the President. Devotional exercises. The Roll-call showed a small per cent of members present. Misses Denton and Lantz were initiated. The program was short for the very good(?) reason that many who were on duty, went home to eat turkey and give thanks, neglecting to see that their places on the program were filled. An Oracle contribution and the news report, read by Miss Friable, were substituted for the Oracle. Miss Helder then favored the Society with a vocal solo. Report of committees, business, propositions for membership, assignment of duties, reading of minutes. Roll-call and quotations closed a session, the like of which is not on record.

F. C.

November 26th.

Promptly at 7:30, President Abbott called the Hamiltons to order, and G. L. Melton led devotion. R. J. Barnett's essay, entitled, "Results of the Recent Election," showed that Cleveland's administration will not differ much from Harrison's. In debating the question, Should the Faculty be compelled to attend the Friday afternoon exercises, F. A. Dawley said that if the Faculty were compelled to attend, students would take more interest in the exercises, and less reading would be done while the exercises were in progress. S. H. Dial, on the negative said the Faculty did attend the exercises when convenient, and no better behavior on the part of students could be noticed. Mr. Emrick thought that if the student knew the professors would attend the exercises, that reading on the part of some of the students would cease during the time. S. L. Findley thought it was a selfish motive on the part of the students to wish to compel the Faculty to remain in chapel when they would otherwise be working at something that would be to our benefit. In closing the affirmative, Mr. Dawley said such a rule would make the students who speak in chapel more interested in their work, and Mr. Dial proved that such would not be the case.

Judges decided in favor of the negative. J. A. Rokas read a humorous selection from Mark Twain, entitled "Aurealls, unfortunate young man." Mr. Findley discussed "Centralization of Wealth and Unrestricted Foreign Immigration". H. L. Pellet, in discussing "The Planet Mars," gave us the views of different astronomers regarding the planet. I. Jones presented the Society paper. A former member, A. D. Rice, talked to the members a few minutes. Considerable time was spent under the head of unfinished business, and after Critic's report the Society adjourned.

I. J.

November 26th.

The Webster Society was called to order by President Dickens, at 7:30 o'clock. The Secretary being absent, the Chair appointed J. Stingley to fill the vacancy. After roll-call, F. M. Aiman led in prayer. The subject, "That we have entered upon an age of unmarried men and women," was argued affirmatively by T. W. Morse and C. R. Kistler, and negatively by J. M. Williams and M. H. Ginter. Many good points were brought out by the speakers. The Society gave the decision in favor of the negative. E. Poston held his audience horror-stricken while describing his "Hour of Horror." F. R. Jolly read an essay on the "Comet" that many people looked for in vain. The Fourth of July orator is plainly to be seen in E. G. Gibson. After recess, F. Rummell discussed a mechanical principle involved in the motion of a revolving wheel. F. J. Smith's remarks on "Prohibition vs. Moral Suasion" brought out various remarks from many of the members. New business. Unfinished business. Music by C. D. McCauley, committee. Ex-Webster's Tucker and Platt addressed the Society. E. A. D.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.</h5

THE INDUSTRIALIST.

VOLUME II.

MANHATTAN, KANSAS, SATURDAY, DECEMBER 10, 1892.

NUMBER 16.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

THE WORLD AND WE.

BY MAUDE E. KNICKERBOCKER, '93.

"LAUGH, and the world laughs with you; weep, and you weep alone." Yes, this world is a very queer world.

If one could, he might spend centuries studying the character of the people on this earth, and then die wondering why he knew so little of them. But we can easily account for this, as there is a change constantly taking place in everything, as it seems.

Time could not permit people of the same character to live on this earth century in and century out. One age must engage in wars and contests; in another peace prevails, and the world moves carelessly along. Today we are not silently drifting along, but, instead, are being pushed, crowded, in the mad strife to gain something—honor, riches, pleasure.

We, perhaps, have riches, the world stands ready to dance attendance; we prepare the table, the world will gladly dine; we laugh, and there is a response. Here there is something gained, pleasure. But again we have sorrows, and with hearts full of sadness we look around for comfort; but no, this is a busy, bustling world, and it has no time to engage in sorrows which belong to others alone.

Why be so selfish as to try to make others miserable by asking them to share the more dismal side of life with us? Would it not show a truer, kindlier spirit to conceal all shadows, and let only brightness and joy shine forth? We must acknowledge that one of the noblest traits of character is this kind of unselfishness, this laughing that others may laugh and forget their sorrows. It makes life seem better worth living to know there are some people inhabiting this globe who are not forever grieving over something. One cannot live a moody, silent life and have friends; he must possess a different spirit. If we are changeable, friends come and go with our moods. We find this so in our daily life: with a joyous mood, friends and acquaintances are numerous, ready to bask in our sunshine; when a dismal feeling prevails, we begin to wonder why this earth is so dreary and desolate. We each have a place in this busy world, and if we help those around us, we must laugh that they may laugh with us; and if we have tears conceal them so that they will not leave us to weep alone.

WHAT DO WE FRAM FOR?

BY E. A. DONAVEN, '94.

BELIEVING a man's barnyard in fall or spring time to be a true index to his farming theory and ability, we will pay a visit to two of our neighbors. We find them both at home, hard at work, showing them to be not the "dry-goods-box" kind, but thrifty, careful workers. Yes, both are successful, practical business men; but their policies differ widely, and it is of this difference that I speak. Farmer A is glad to see us, and pleased to show us round. The fences are all in good shape, posts upright, and no loose wires. All the sheds and stables tight and comfortable. But the horses, what ails them? Poor? Well, yes. They look as though they had had a narrow escape in passing the winter. My farmer friend tells me, "We don't have anything for these horses to do, except during a few months in mid-summer. There's very little for horses to do here in the West anyhow. We work two or three teams during corn cultivation and harvest time, and then we are through with them for the rest of the year, and of course can't afford to feed them all the good hay and grain they could eat." Ah! That explains it, then. Our friend simply goes on

the theory that every grain of corn put into stock for which he saw no visible returns was just so much corn lost. His idea would have been to have had horses so arranged, that when he finished the summer's work, all that was necessary would be to take them apart, and store them in some out-of-the-way place as he would a hay rake.

The cattle were in the next yard, and as the bleak wind whistled round their thin, shivering frames, we were informed that "Those cattle, had they been kept fat, would have eaten their heads off a half dozen times this winter, the price corn was and the way cattle were selling." So spring found him with poor, weak horses, a herd of starving cattle, and full corn cribs.

Farmer B seemed to take great pleasure in showing us about his yards. He evidently experienced a keen delight in being among his stock. His fences and buildings were also in good repair. From the first horse to the last cow or hog, all were sleek and in good condition. This farmer took real pride in the comfort and good looks of his animals. If a "critter" appears to be losing flesh, he has her fed a little extra grain. Nothing pleases Farmer B more than to watch a big ox chew leisurely on the hay with such evident satisfaction, or to see a lazy, fat hog grind corn into pork.

Such are the two policies of the two farmers; yet each is called successful and prosperous. And this brings us back to our question, "What do we farm for?" If our aim is simply to make money, caring nothing for the comfort of the animals, being careful to put no labor for corn (which is the result of labor) where it won't bring in a dollar, then Farmer A is our man. It is very true, that after four or five horses have eaten all winter on a well-filled oat bin, you are apt to ask what you will do for feed for spring work. The bone-yard is a conspicuous and necessary addition to your farm, but still Farmer A is your man. But, on the other hand, if your whole aim in life is not the accumulation of wealth, a great deal of satisfaction and happiness will come to those of Farmer B's stripe. Then, upon the decision of this question let your farming policy be based.

MINERALS AS A HOBBY.

BY PROF. G. H. FAILYER.

THIS is a great time for fads or hobbies, as they are variously called. Saying nothing of the games, and similar pastimes which for a limited time have a great run in popular favor, there are very many articles to the collection of which is given all the energy and strength that could possibly be expended in the most important or necessary work. It amounts to a passion with the collector, and one whose whole attention has been devoted to the practical affairs of life will be surprised if he steps aside to learn the number of persons that are engaged as recreation, at least, in the collection of articles whose only value is in their variety and in their forming a part of a series or set. Reference is made to the collection of such articles as coins, used postage stamps, post-marks, old crockery, old books, etc. The number of persons engaged in the sale of postage stamps, and the number of purchasers they find, is something wonderful. All this is very innocent amusement; and since one must be able to throw off dull care a portion of the time to obtain both physical and mental rest, this is perhaps as good as anything, for it certainly requires little exertion, either physical or mental.

A few days ago, a friend, while looking at a crystallized specimen of zinc blende which was brilliantly iridescent from surface tarnish, remarked that those who could might be satisfied

with cancelled stamps, but he could take much greater pleasure in collecting mineral specimens. I have wondered since if there is not considerable in the thought. If people will have bad collections, what can they derive more real pleasure from than from a mineral collection? What are the requisites to an absorbing interest in a collection? Number and variety, including such things as color, form, date, locality, structure, quality, and condition, are circumstances giving interest to the individuals of the one or the other sort of collection. Minerals possess these attributes that fascinate collectors to a marked extent. There are the mineral species with their classification, according to composition; the crystalline form, with departure from the fundamental form by the replacement of edges and angles; the varieties of structure, foliated, fibrous, and compact; the colors often of great beauty; the uses either as minerals, or as ores of valuable metals; the ornamental stones and gems; the alterations to which they are subject; pseudomorphs, cleavage, lustre, hardness, weight, locality,—all these afford opportunity for the exercise of the collector's art as such, and besides give an exquisite pleasure to him who is capable of experiencing it.

To perfectly enjoy a mineral collection, one should know something of the minerals themselves, and not be content with the name and the locality. Form and color usually speak for themselves, in a general way. But the cause of the color and the mathematical relations of the crystalline forms, as well as most of the points of interest mentioned above, require a deeper insight than can be had by mere inspection. But it is not a difficult matter for one to study his specimens by means of book and blow-pipe.

In addition to the value of such work as a hobby, it will make one acquainted with an important part of nature about us, rocks and soils being at once a pleasure and profit.

STUDENT ETIQUETTE.

BY JOHN STINGLEY, '94.

ALL well-bred people will conduct themselves at all times and in all places with perfect decorum. Whenever they meet people they will be found polite, considerate of the comforts, wishes, and conveniences of others, and unobtrusive in their behavior. They seem to know, as if by instinct, how to conduct themselves wherever they may go, or in whatever society they may be thrown. They consider at all times the fitness of all things, and their actions and speech are governed by feelings of gentleness and kindness towards everybody with whom they come into social relations. They have a due consideration for the opinions and prejudices of others, and do nothing to wound their feelings. Many people, however, either from ignorance, thoughtlessness, or carelessness, are constantly violating some of the observances of etiquette pertaining to places of public assemblage.

At no time during the course of life has one a better opportunity for improvement in this line than during his college course. Here, within crowded hall, class-rooms, and chapel, is certainly a good chance to become polished in manners. Here, first of all, one should, in all his actions, consider the comforts, conveniences, and wishes of others. Unless you have had some experience, you can hardly judge the amount of annoyance one careless person can give to a whole group of attentive listeners. For example, a person who, in most respects, seems bright and intellectual, from lack of home training, or mere carelessness, often by rattling the hat holder, by shuffling his feet, or by some other one of the many ways of annoyance, prevents from five to twenty of his neighbors from hearing the discourse, and exposes his ignorance of the laws of etiquette simultaneously.

Here, also, one should try to become courteous and polite in manners; for etiquette is closely related to courtesy, which we are told was true of chivalry. If it is true, as it seems to be, that chivalry is the origin of true courtesy and true etiquette, the revival of chivalry, even in our colleges, would certainly be a step in the right direction.

Before the days of chivalry, we are told, politeness was but little understood, and particular politeness to women was unknown. The stronger domineered over the weaker, regardless of principle. Chivalry, however, taught that politeness, courtesy, and generosity were virtues, and that strength must waive its right.

Courtesy, politeness, and generosity are as justly virtues today as they were in the time of Ivanhoe. Hence, a man can become virtuous by a little culture and care.

Etiquette is to a man of the world what drill and exercise are to a soldier. One may be a brave man, but he cannot be an accomplished soldier unless he is acquainted with the minutia of his profession. So it is in the world: every man should have a knowledge of etiquette to be thoroughly well-bred.

Now, all people want to be thought well-bred, and your only way to accomplish this is to familiarize yourself with the minute points of etiquette. While the social observances, customs, and rules which have grown up are numerous, and some, perhaps, considered trivial, they are all grounded upon the principle of kindness to one another, and spring from impulses of a good heart and from a friendly feeling.

KANSAS STATE AGRICULTURAL COLLEGE— REPORT, 1891-2.

To the Secretary of the Interior:—

In accordance with the requirements of the act of Congress approved August 30, 1890, I beg leave to submit the following report of the Kansas State Agricultural College for the year ending June 30, 1892:—

The year has been one of general prosperity in all matters concerning the College. The personnel of the Board of Regents has been changed by the retirement of two members at the expiration of their terms of office, their places being filled by new appointments of men equally interested in the welfare of the College, and from counties not heretofore represented in the Board. The Board of Instruction has had no changes in its general character. An Assistant Professor in Chemistry has been appointed, with a slight re-adjustment of duties. The Chair of Botany, which was vacated by the resignation of Prof. W. A. Kellerman to accept a similar position in Ohio, has been filled by the appointment of Prof. A. S. Hitchcock, of St. Louis, Mo. An additional instructor in English has been appointed. Other changes have been confined to the corps of assistants and foremen.

The only addition to the buildings of the College during the year has been an iron shop 40 x 80, with a foundry shed attached. This was provided by appropriation of the Legislature, which also gave several thousand dollars for re-roofing buildings, and a system of sewers from all the buildings. The new shop is a model of convenience and arrangement, built of stone, iron, and glass, and covered with steel tinned roof. This shop has been fully equipped for iron work, including forging, bench filing, and lathe work, as well as both iron and brass founding. Instructors have been added as foremen in the shops and on the farm and garden, the industrial training in all these departments having been made more instructive and systematic.

The total attendance for the year, 584, is nine less than in the previous year. But the average attendance has been greater, the falling off in the total number being accounted for by the increased requirements for admission, making it less possible for students to enter during the latter part of the year. These additional requirements accompanied

a re-adjustment of the course of study, with a slight extension of the mathematics of the first year, and a fuller provision for technical study in the last year of the course. The course still remains, as for fifteen years past, in close adjustment to the common schools of the State. Students are received upon certificates of having completed full grammar school courses in the best graded schools of the cities, or upon diplomas from the best graded county school courses, granted by county superintendents after examination, as well as upon certificates of authority to teach in the several counties. The plan has worked satisfactorily in giving a substantial body of students, well equipped in general for their work, and old enough to appreciate their privileges in the College. The average age of males and females together is 19.8 years. They come from 77 different counties of this State and 14 other States.

The graduates from the four-years' course numbered thirty-six, of whom ten were young women. The class is nine greater than in any previous year but one, the last, when there were fifty-two. The ratio of young women to young men in all classes has remained essentially the same for many years past. The number of young women has been one-half that of the young men. A number of post-graduate students and advanced students have been employed in connection with industrial training as assistants, and have proved serviceable.

The Experiment Station, provided for under the act of March 2, 1887, has been continued as a department of the College in successful work along essentially the same line followed and reported upon last year. Thirteen bulletins have been published announcing results of completed experiments, and these have been supplemented by the annual report, containing a full index of the subject matter of the bulletins, with title page and table of contents, ready to be bound with the bulletins in a single volume. An extensive experiment in steer feeding was carried on through the winter, a report of which will be published early in the autumn. Other experiments are now in progress, results of which will appear at the close of the season. The following list of bulletins from the 4th annual report of the Station will give the essential character of the work completed during the year:—

- Bulletin 20—Farm Department, "Wheat."
- " 21—Botanical Department, "Stinking Smut of Wheat."
- " 22—Botanical Department, "Smut of Oats; Smut and Rust of Wheat."
- " 23—Botanical Department, "Smut of Sorghum and Corn."
- " 24—Veterinary Department, "Staggers of Horses."
- " 25—Chemical Department, "Sorghum for Sugar."
- " 26—Horticultural Department, "Varieties of the Strawberry."
- " 27—Botanical Department, "Crossed Varieties of Corn."
- " 28—Horticultural Department, "The Experimental Vineyard."
- " 29—Farm Department, "Oats."
- " 30—Farm Department, "Corn."
- " 31—Chemical Department, "Sugar Beets."
- " 32—Chemical and Farm Departments, Miscellaneous.

The expenditure of the \$15,000 for the Experiment Station is classified as follows:—

Salaries	\$9,086 57
Labor	1,814 38
Apparatus	361 03
Supplies	321 04
Printing and engraving	2,758 05
Stationery	20 65
Postage	26 94
Library	27 51
Traveling	194 80
Freight	174 41
Rent	73 00
Furniture	60 00
Telegram	62
Association	20 00
Photographs	44 00
Total	\$15,000 00

These have been distributed to the several departments of investigation as follows:—

Department.	Salaries.	Supplies, etc.	Totals.
Farm	\$2,691 66	\$1,283 49	\$3,975 15
Horticulture	2,399 98	514 97	2,914 95
Chemistry	1,766 64	324 07	2,090 71
Botany	719 98	544 71	1,264 69
Veterinary	625 00	287 53	912 58
General	883 31	2,958 61	3,841 92

The various data furnished in the form required and hereto attached must be understood to refer to an institution having the definite object to provide liberal education for farmers and artisans in the line of their calling. Where the agricultural and mechanical departments are mentioned separately, the terms refer simply to the farm and its stock,

(Continued on page 69.)

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.
 Winter Term—January 9th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Commencement.
 1893-94.
 Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

GRADUATES AND STUDENTS.

May Secret, '92, is visiting at College this week.

Elmer Brown, student in 1886-7, is station agent for the Santa Fe, at Alden.

Lillian St. John, '91, was the guest of the Alpha Betas last evening.

E. A. Allen, '87, recently passed examination for teacher in the Indian Service.

Mamie Polson, student last year, is attending the home school at Winkler's Mills.

D. E. Bundy, '89, is pastor of the M. E. Church South at Peach Grove, Riley County.

F. Hill drops out of First-year classes to earn money for a veterinary course next year.

W. H. Olin, '89, is to lecture at Waverly, where he once taught, the last of this month.

Ollie Bentley, student in 1888-9, is traveling for the Dresser Soap Company, of Kansas City.

A. L. Guy, student in 1887-8, a merchant at Wakefield, was married December 1st to Fannie Alsop.

F. A. Waugh, '91, is agent and correspondent for the *Kansas Farmer*, with headquarters all over the State.

D. H. Otis, '92, returns this week from his eastern trip, and enters the Farm Office as assistant to Prof. Georgeson.

I. D. Gardiner, '84, has sold an interest in the *Alma News*, and will retire from active management of the paper.

L. H. Neiswender, '84, is still engaged in the cultivation of his fine farm near Silver Lake, and report says he is getting rich.

Nora Fryhofer, Second-year in 1891-2, teaches large classes at the Pleasant Prairie school on Upper Fancy Creek. She will return to College next year.

Callie Conwell, '91, writes from Spencer Academy, I. T.: "My work is growing in interest every day. It is wonderful how these boys can be improved."

J. R. Harrison, '88, visited his parents in Manhattan during the week. He is still in Uncle Sam's employ as a postal clerk on the Missouri Pacific Railway.

Mr. A. W. Jones, student and instructor in the Wesleyan University, at Salina, is visiting the College today with Mrs. Jones. He was a student at this College in 1884-5.

Lyman Harford, a student in the early '80's, now teacher of the Otter Creek school, will succeed County Superintendent-elect Swingle as Principal of the Randolph schools on January 1st.

Geo. Fryhofer, Second-year in 1891-2, is gaining experience in teaching the Prairie Rock school, about five miles northwest of Randolph. He plans to take up college duties next year.

John Davis, '90, writes of successful teaching in the High School at Wakefield, where F. H. Avery, '87, is Director, and Mary Avery, Second-year in 1886-7, is teacher of the Primary school.

Gertrude Coburn, '91, sends an interesting account of the provisions for science teaching in the Stout Manual Training School at Menominee, Wis., where she is Instructor in Household Economy.

The Brownies, those happy and mischievous little people to whom we owe so much of good in this world, have invaded Tennessee, and, on Dec. 1st, one of them was captured by J. B. Brown, '87, and wife, and has been named Leland F. The U. S. Signal Station at Nashville, which is in Mr. Brown's care, will now probably hoist the signal

for coming squalls, though a long period of fair weather is hoped for by their many friends.

G. L. Clothier and J. N. Harner, '92, attended the Alpha Beta Exhibition last evening. The former is County Superintendent-elect of Waubunsee County, and the latter a teacher near Maple Hill.

W. D. Gilbert, Class of '74 at the College, was an independent candidate for Judge of the Atchison District, and was elected by a plurality of 618. There were two candidates opposing him, which makes his victory all the more significant.—*Manhattan Republic*.

Ye editors visited Topeka and Kansas City last Friday and Saturday, the junior member [W. P. Tucker, '92] going to Manhattan Saturday evening, where he found his alma mater, the State Agricultural College, in a flourishing condition. This is the recognized leader in the whole United States of the Agricultural Colleges, not only in the point of attendance, but in organization and work accomplished, and is a splendid institution all around.—*Douglas Tribune*.

LOCAL MATTERS.

Mr. C. T. Woods, of Randolph, visited the College Wednesday on business.

The College Cadets get 5000 rounds of ball cartridges for target practice this year. This will give each marksman about forty shots.

The snow blockade of Thursday caused but few absences from Chapel, though the storm of the previous day had a marked effect upon attendance.

Prof. Georgeson is, by invitation, in attendance upon the meeting of the Iowa Dairymen's Association this week with a paper on "The Balanced Ration."

Professors Georgeson, Graham, and Mayo will read papers at a Farmers' Institute to be held at Sharon Springs, Wallace county, December 22nd and 23rd.

Prof. Olin is selected as one of the judges on thought and composition for the Collegiate Oratorical Association, which meets at Topeka on February 17th.

The Class in Agriculture, during Prof. Georgeson's absence this week, are considering the underlying principles of land tenure under guidance of Pres. Fairchild.

Prof. Popeno is directing four classes in entomology and horticulture while Prof. Mason attends the annual meeting of the State Horticultural Society at Winfield this week.

During the absence of Prof. Walters in making his report on landscape gardening before the State Horticultural Society, Miss Phoebe Haines, '83, directs the classes in drawing.

Prof. Olin presents a paper on "Individuality in School Matters" before the general session of the State Teachers' Association on Thursday evening, December 29th.

Assistant Burtis will present a paper on "A Dairy Test of Soy Bean Ensilage" at the Sixth Annual Meeting of the State Dairy Association, to be held at Topeka on December 15th and 16th.

The Post-graduates and Fourth-years who have "P. M." sewing were treated to a dainty lunch by Mrs. Kedzie on Thursday. It was very much appreciated, as the products of the Kitchen Laboratory always are.

A gathering of graduates and former students of the State Agricultural College will be provided for in connection with the State Teachers' Association. Look for announcement for Wednesday evening, December 28th.

Lieut. and Mrs. Helmick are very much pleased at the idea of a possible detail to this College. Their many friends here would give them a warm welcome in case the detail is made. Lieut. Helmick is now at Fort Sherman, Idaho, where he has been for several years past.

The exercises in Chapel yesterday consisted of orations from the third division of the Fourth-year Class, as follows: "Partisanship," G. L. Melton; "A Bit of Irish History," W. D. Morrison; "The Lesson of Defeat," Laura G. Day; "Some Thoughts on the Labor Question," A. F. Niemoller; "An Evil of Today," Maude E. Knickerbocker; "Should the Government Own the Railroads?" H. L. Pellet; "The Bashful Man," M. W. McCrea.

THE ALPHA BETA EXHIBITION.

Bad roads and sidewalks did not prevent a large audience gathering in the College Chapel last evening, to attend the Eleventh Annual Exhibition of the Alpha Beta Society.

Although a part of the well-drilled College orchestra were delayed by the dearth of vehicles, the remainder rendered in a pleasing manner a delightful overture.

After invocation by President Fairchild, the Society President, Jno. E. Thackrey, welcomed the audience with a few well-chosen remarks reviewing the history and work, and setting forth the aims of the Society.

An octette of male and female voices was a feature that only the Alpha Beta's could furnish, and was well rendered.

The opening address, "The Columbian Exposition and America," by C. H. Thompson, was a well-written and well-delivered production. He gave a short synopsis of the country's growth, and dwelt on the advantages the country would derive both in aesthetic and material improvement.

The duet by Misses Parker and Smith was a musical treat, their voices blending beautifully.

The discussion of the question, "Is Artificial Rain-making Practical?" was presented by Jenny Smith on the affirmative. She reviewed the history of experiments, and cited examples and theories of scientists with skill and taste. Geo. L. Christensen brought forth facts, theories, and ridicule to bear on the negative side.

Miss Sadie Moore, the editor of the paper, is to be congratulated upon the good edition of the *Gleaner*. Its wit and sarcasm were well received and served to vary the tone of the paper, which throughout was well written and read in a pleasing manner.

"The Fortune Teller," well sung by a quartette, was their "funny song," and was heartily encored.

Miss Onie Hulett's oration, "Reform as a Growth," showed careful preparation and knowledge of methods proposed for correcting existing society evils, as well as her ability as a speaker.

A comic pantomime gave the audience a change and enlivened the programme.

The closing oration, "Ideals of Modern Times," by Miss Toothaker, compared the ideals of former times with those of our own. She pointed to the higher ideals of today as the cause of our progress. Her thoughts were presented in a fitting manner.

The last song, "Rest Thee on this Mossy Pillow," was sung by Misses Parker, Senn, and Smith in a manner that was highly pleasing to the audience, and a credit to Miss Parker, the music committee.

President Thackrey said good-night, and the exhibition was over. It was a success, and all unite in saying it was a credit to the Society and the College.

FOR SALE CHEAP

A brand new set, latest edition, Encyclopedia Britannica. Address, *Republic*, Manhattan, Kansas.

One of the latest achievements of the inventive genius is the long-distance telephone from New York to Chicago. It has practically annihilated distance. Voices are distinctly heard and conversation easily carried on over a thousand-mile line. Besides important improvements in transmitters, receivers, fittings, etc., two wires are used, the circuit being completed by a return wire. The new long-distance telephone will become a formidable rival of the telegraph.—*Farm and Fireside*.

It pays to concentrate the products of the soil and sell refined products that carry the highest value with the least exhaustion of fertility. In one ton of hay you sell 85 times more from the soil than you will in one ton of fine butter, and you will probably get for the hay \$10 and for the butter \$450.—*Prof. Robertson*.

One man in a hundred will remark, when asked to subscribe for an agricultural journal, that he "don't believe in farming on paper." These figures correspond so closely with the number of fellows who don't know anything about farming, in the true sense of the term, as to suggest something more than a coincidence.—*Our Grange Home*.

(Continued from page 66.)

the shop and its equipments without reference to the use made of all the College buildings and grounds in direct instruction for these arts. All the students are receiving training in some of the lines of industry. Every young man gives one-fourth of his time at College to training in the shops, the printing office, the farm, or the garden. Every young woman gives a like attention to some industrial. Young men are required to have at least one term at wood work, a term in farm operations, and a term in gardening, during the course. Young women are required to take at least one term's training in sewing, in cooking, and in dairying. These industries are pursued with energy, at the same time with their regular class-room study, and the work is graded for record upon the same scale. Military training has been provided for the young men according to the act of July 2, 1862, since 1881. This training is optional in so far as young men may elect to take the drill or not, but all are required to pass examination upon courses in their second year in College. As a result, some 90 per cent of students taking the course have voluntarily taken the training in military tactics. It is thought that under this option a larger proportion of young men are so trained than would be if on entering College they were at once required to enter the battalion. The College furnishes uniforms for use during drill only, and has had an officer in detail, with the usual provision of arms and ammunition from the War Department.

The above report is accompanied by the following data, to which you are respectfully referred for further particulars: (1) Report of the Treasurer in form specified by the Commissioner of Education; (2) Statistics of receipts, expenditures, library, faculty, students, etc., under directions of the same officer. (3) The annual catalogue for 1891-2. (4) The annual report of the Experiment Station, including Bulletins Nos. 20 to 30. (5) A bound volume of the INDUSTRIALIST for 1891-2, giving the current events of college life for the year. Upon publication of the biennial report of the College to the Governor of the State, it will be forwarded to supplement the above.

Very respectfully yours,

GEO. T. FAIRCHILD, President.

Manhattan, Kansas, June 30, 1892.

I. RECEIPTS FOR AND DURING THE YEAR ENDED JUNE 30, 1892.		
1. State aid: (a) Income from endowment (No State endowment).....	\$.....	
(b) Appropriations for current expenses.....	2,200 00	
(c) Appropriations for buildings or other special purposes.....	10,300 00	
2. Federal aid: (a) Income from land grant, act of July 2, 1862.....	29,653 83	
(b) For experiment stations, act of March 2, 1887.....	15,000 00	
(c) Additional endowment, act of August 30, 1890.....	17,000 00	
3. Fees and all other sources.....	7,183 48	
Total receipts.....	\$81,337 31	
Coal furnished from State mines free.		

II. EXPENDITURES FOR AND DURING THE YEAR ENDED JUNE 30, 1892.		
1. College of Agriculture and Mechanic Arts.....	\$70,230 38	
2. Experiment Station.....	15,000 00	
3. All Other expenditures returned to the State Treasury.....	175 01	
Total.....	\$83,905 39	

III. THE LIBRARY		
1. No. bound volumes, June 3, 1891,.....	11,461	
Pamphlets.....	3,300	
2. Bound volumes added during year ended June 30th, 1892.....	709	
Pamphlets.....	250	
Total bound volumes.....	12,170	
Pamphlets.....	3,550	

IV. FACULTY DURING THE YEAR ENDED JUNE 30, 1892.		
	Male.	Female.
Number of professors and instructors in College of Agriculture and Mechanic Arts.....	23	5
Number of staff of Experiment Station.....	11	
Total, counting none twice.....	28	5

V. STUDENTS DURING THE YEAR ENDED JUNE 30, 1892.		
1. College of Agriculture and Mechanic Arts:—	Male.	Female.
(a) Preparatory classes.....		
(b) Collegiate and special classes.....	402	182
Total in College of Agriculture and Mechanic Arts.....	402	182
2. In all other departments.....		
Value of farm lands.....	\$24,000	
Total number of acres.....	319	
Acres under cultivation.....	230	
Acres used for experiments.....	180	
Agricultural Department (<i>Farm proper</i>):—		
Value of buildings.....	\$10,760 00	
Of other equipments.....	14,396 80	
Mechanical Department (<i>Shops proper</i>):—		
Value of buildings.....	11,500 00	
Of other equipments.....	13,115 36	
All other Departments:—		
Value of buildings.....	114,350 00	
Of other equipments.....	99,137 78	
These are directly connected with the Departments of Agriculture and Mechanics in all particulars.		

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

The school children of Emporia donated four wagon loads of provisions to the poor of that city on Thanksgiving day.

There is a rumor abroad that Prof. Wilkinson of the State Normal is going to leave that institution. It would be an almost irreparable loss to the Normal and the State.

The thirtieth annual meeting of the Kansas State Teachers' Association will be held at Topeka, December 27, 28, and 29. A synopsis of the published programme will be given next week.

The Woman's Columbian Club of Russell county are having photographs taken of every schoolhouse in the county, together with the scholars, and the pictures will be sent to the World's Fair.

The friends and patrons of McPherson College are endeavoring to raise an endowment of \$30,000 for it. An agent is soliciting subscriptions in the settlement of the German Baptists of the State.

At the meeting of the Manhattan School Board Monday evening, Miss Marian Hunten, of Cherokee, Iowa, was offered the position of principal of the high school, at a salary of \$65 a month, and to take charge January 2d, 1893.

The judges on thought and composition selected for the collegiate oratorical association this winter are Thomas Emmet Dewey, editor of the *Agora*; C. E. Sheldon, the Topeka Socialist preacher, and Prof. O. E. Olin of the State Agricultural College. The judges on delivery are Senator S. S. Kirkpatrick of Howard; Judge Frank Doster, the Judge of Marion County; and Mr. George R. Peck of the Santa Fe Railway.

The meeting of the North Central Kansas Teachers' Association at Junction City, Nov. 24, 25, and 26, was a great success. The papers, without exception, were good. In the elocutionary contest, the judges awarded the prizes of \$15, \$10, and \$5 to Nettie Hoyt, Lincoln County; Theresa Rizer, Geary County; and Mac Whittaker, Mitchell County. At the business session on Saturday morning, Supt. S. V. Mallory, of Junction City, was elected President of the Association for the ensuing year. The Association adjourned to meet next year at Concordia.

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens.

Scientific Club.—President, J. T. Willard; Vice-President, Minnie Reed; Secretary, Marie Senn; Treasurer, C. H. Thompson. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, W. H. Phipps; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halsstead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Moran, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donaven; Treasurer, John Patten; Critic, F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell; D. S. La Schele, J. A. Scheel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Knickerbocker; Vice President, Elsie Crump; Recording Secretary, Lorena Helder; Corresponding Secretary, Florence Corbett; Treasurer, E. E. Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

December 3rd.

The sound of the gavel called the Hamiltons to order at 7:30, Pres. Abbott in the chair. C. D. Griffen was elected to membership. C. A. Chandler's declamation was a selection from Webster. The affirmative of the question "Is public opinion a safe standard of right?" was argued by C. S. Evans and T. B. Ridenour, and the negative by W. O. Peterson assisted by Mr. Pinkham. Many good points were brought out on both sides, and the Judges decided in favor of the affirmative. C. A. Johnson's select reading was a humorous selection from Peck. C. A. Doane, in his discussion, described the process of cheese making. O. A. Otten discussed the telephone process of Captain Carollois. The Hamilton Orchestra furnished music for the evening. E. L. Frowe music committee. C. J. Peterson presented the Society paper, which contained a number of interesting contributions, and showed good work on the part of the Editor. Unfinished business interested the Society till the hour for adjournment.

I. J.

On account of the leap-year dance, President Albert Dickens did not have as bright a roomful of Websters to call to order as usual, but all were ready for duty. G. W. Smith led in prayer. After roll-call, the minutes of the last meeting were read and

adopted. The question, "Have Labor Organizations been a Benefit to their Members?" was argued by J. W. Evans and John Stingley on the affirmative, and G. Forsyth and S. A. McDowell on the negative. The affirmative cited the high wages per hour and less hours for a day's work; paid at the World's Fair buildings also the help given to sick members; and thought dues used in this way were a grand thing. The negative denounced the eight-hour system, saying the laborer had better work two hours more and so get that much more pay; they said strikes took much of their time, and late meetings made them unfit for work the next day. They declared the dues were more than that paid to sick members, and suggested other secret societies as better able to help the needy than these. S. H. Creager read an essay on "Why so Many Business Men Come from the Farm," showing that farmers, because they must stick close to business and be industrious, are well fitted for business. E. Webster delivered a declamation on "The Homestead Affair." C. F. Pfeutze, in an essay on "The Question of Development of the South," brought out some interesting facts on its development during the last ten years. A quartette consisting of Messrs Cutler, Gibson, Shoup, and Smith sang a song "Better Late Than Never." M. F. Hulett presented an issue of the Reporter that would be hard to beat. The news of the week was by F. Uhl. Among other things, he stated that the comet, like the man who advocated it, proved to be nothing but gas. The subjects, "The Nicaragua Canal," and "Why Some Farmers Don't Succeed," were discussed freely by the Society after being presented by C. R. Pearson and L. W. Hayes. The Society spent but little time under unfinished and new business, being unusually anxious to get home for reasons stated above, and after listening to some well-directed remarks by E. C. Pfeutze and F. A. Marlatt, adjourned promptly at 10:30.

M. W. M., Sec'y pro tem.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

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R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

VARNEY'S BOOKSTORE.—Popular Head-quarters; for College Text-Books and Supplies. Second-Hand Books often as good as new. Call when down town, Always glad to see you.

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E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

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PHOTOGRAPHS.

D. EWEY, the photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue.

BOOTS AND SHOES.

RELIABLE Boots, Shoes, and Rubbers, direct from the leading eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

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PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class. Special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

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S. HULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

SHAVING PARLOR.

THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, DECEMBER 17, 1892.

NUMBER 17.

INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The *INDUSTRIALIST* may be addressed through Pres. Geo. T. Fairchild, President. Subscriptions are received by Supt. J. S. C. Thompson.

The Library or Museums should be sent to the Librarian, Mayo, Chairman of Committee on Museums.

General scientific or practical, concerning the different departments or work, may be addressed to the several Professors and Superintendents.

Information concerning the College and its work—studies, examinations, grades, boarding-places, etc.—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' institutes should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

THE APPLE-Twig BORER.

BY PROF. E. A. POPENOE.

AS the season approaches in which necessary pruning is done, we venture a word or two by way of reminder as to the most available method of checking the increase of a widely distributed orchard insect whose work is now most likely to be noticed.

The apple-twig borer, *Amphicerus bicaudatus*, occurs generally throughout the State where orchards and vineyards are cultivated, and its work as an adult in boring lengthwise through the canes or the new wood of the grape and the twigs of the apple is familiar to all observant fruit-

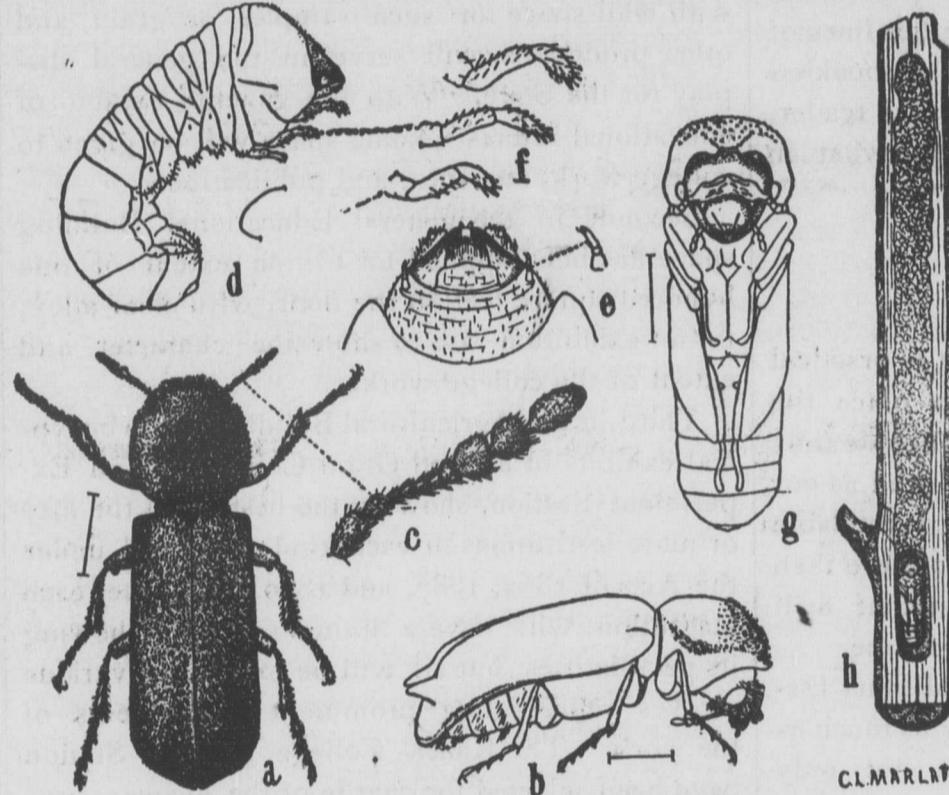


FIG. 1 TRANSFORMATIONS OF THE APPLE-Twig BORER (*Amphicerus bicaudatus* SAY). The figures, excepting *h*, which is natural size, are enlarged; the hair-lines at the side, in *a*, *b*, *d*, and *g*, showing the actual size; *a*, the female beetle from above; *b*, outline side view of male beetle; *c*, antenna, showing structure; *d*, full-grown larva; *e*, head and antenna, and *f*, the right legs of the larva; *g*, front view of pupa, in outline; *h*, twig, showing, above, the larval burrow packed with castings, and below, the pupa in its cell.

growers. The burrow is along the pith of the twig attacked, and almost always begins just above a bud. At this season, the beetles may often be found in the burrow, head downward, though many burrows are now vacated. The effect of the work of the beetle is not the immediate destruction to the twig, though as the cavity is likely to catch and retain rain-water, the decay of the wood is the usual result.

The life history of this insect was first published, from observations made at the Kansas State Agricultural College, in the report of the Experiment Station for 1888. It was found that the larvae of the twig borer occupied by preference dead or dying wood of shrubs or trees of several kinds, among which are the grape, the tamarix, and the soft maple. They travel back and forward through the infested wood until sometimes it is nearly entirely powdered by them. We have not observed them in healthy living wood, though they occasionally occupy stems

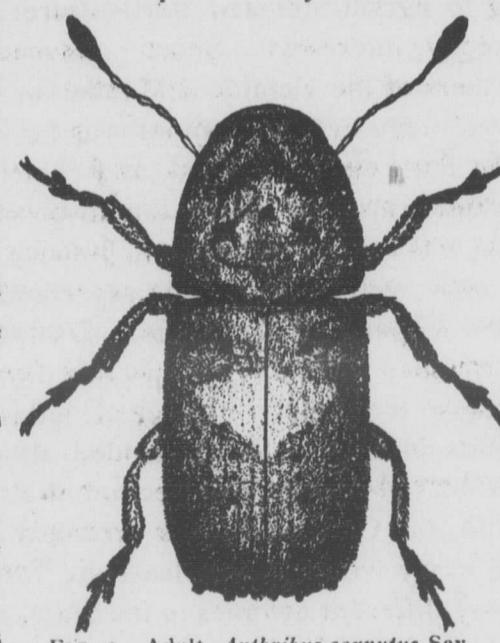


FIG. 2. Adult *Anthribus cornutus* Say.

that are dead or dying while still attached to the vine, as it is in the wood of the grape that they breed most abundantly. Associated with them

in the wood of tamarix was found another boring beetle-larva, that of *Anthribus cornutus*, whose economic interest is not yet established.

The *Amphicerus* is in some seasons so abundant as to injure seriously grape vines and young apple trees. Lest it increase to that degree, it is wise to collect and burn at this time in the year all twigs bored by and probably sheltering the parent beetle, and also all prunings, or dead vines especially, about the vineyard, as these are the preferred food of the insect in its earlier stages.

The original figure of the insect in its several stages is here reproduced (Fig. 1) as furnishing a means of identification superior to any description. As of associated interest the transformations of the companion borer are also given. (Figs. 2, 3).

A NEEDED WORK.

BY PROF. O. E. OLIN.

THERE is a widespread and growing interest in all things pertaining to civics and political economy. It is not a mere political wave that has its origin in a stirring campaign, for it goes beyond the election of officers and the responsibilities of the various departments of government. The conception of government as a police force, the duty of which is to protect people in the exercise of private rights, is giving place to the idea that government is an organized means for advancing the general interests of the people; and that whatever the organized community can do cheaper or better than

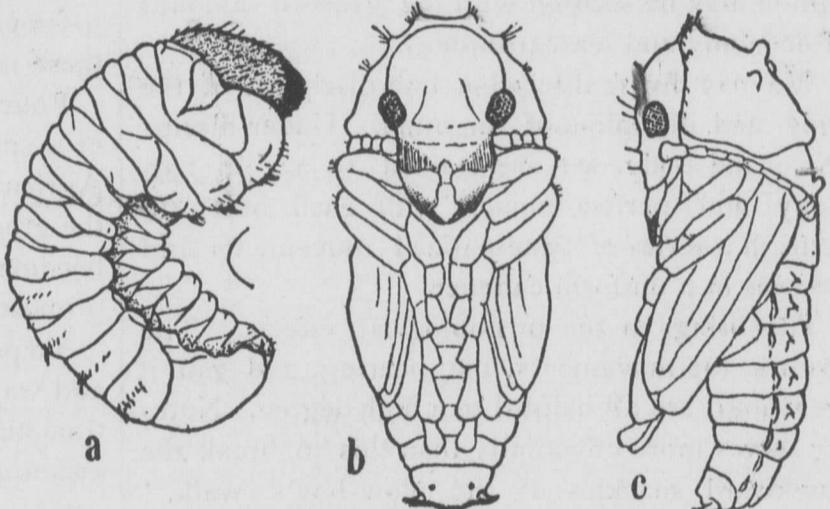


FIG. 3. Larva and pupa of *Anthribus cornutus* Say.

the individuals can, may properly be in its province, provided it is a matter of common usefulness. So people are studying the proportions and the conduct of the various industries of the United States to see how government comes in contact with them, if at all, and how they affect our daily lives. The vexed questions growing out of tariff, commerce, and monetary systems must, of course, be settled by men who have made those matters a special study; but every citizen should be able to understand the basis of the policy pursued, its general workings, and the ends to be gained, and be able to judge whether the settlement be just or wise. That is what I hope the present interest in these subjects will lead to.

There is now a lack of material in convenient form for such study. Census reports and tables of statistics make rather uninteresting reading for the average man. There is an opportunity for some impartial man whose facilities for obtaining accurate knowledge are sufficient to make himself very useful by preparing a set of handy volumes or pamphlets that shall tell, in something more

than a dry statistical way, the story of our great industries. Take the wheat industry, for instance. Most people know little more than the particulars of growing and harvesting. It would make interesting reading to learn of the wheat areas of the world, the relation of wheat to the food supply, the steps in marketing from the local sale to the final one, the elevators, inspection, the boards of trade, with their useful and harmful methods, the ocean shipment, and the great milling centers of the country—all this in such a way that one need not feel that he is brought to school again. To this might be subjoined tables of yield and price that would help in comparative study, and enable one to know the needs of any nation, or the world.

With this knowledge before him, one is ready to understand the effect of any government action, whether in restriction, inspection, or protection.

The same might be done with all other lines of industry till we should have a series of booklets that would be very helpful to the general reader, and that might with profit be used somewhat in the schools.

MILITARY DRILL.

BY W. E. SMITH, '98.

IN deciding the question whether it is practical to take drill or not, we are apt to place the common interpretation upon it and conclude that it is not as a means of defence only. And as our nation has grown so populous and so formidable in the eyes of other nations, it is no more than natural that we arrive at the conclusion that drill is of minor importance, and a mere pastime.

On the contrary, I believe that our Military Department should be patronized equally as much as other departments in the institution, not only from the defensive side of the question, but from an educational standpoint.

Discipline is one of the valuable features in an education; consequently, drill is wholly practicable. We are at the right age when this discipline may be secured with the greatest amount of economy and least trouble.

We may divide discipline into discipline of the body and discipline of the mind. Under discipline of the body, we are trained to act in harmony and perfect unison with each other to perform a series of systematized movements and motions in a uniform cadence.

This brings in the physiological effects. The posture, the movements, the bearing, and gait it prescribes, are all helpful to a high degree. Nothing serves more effectually than this to break the "awkward shackles of the plow-boy's walk." The transformations that a mouth's good, solid training brings about are certainly remarkable.

As to discipline of mind, it requires close and constant attention to business. It develops the mind in a way that it may be able to grasp and interpret the exact situation of things instantaneously. Drill forms habits of fixed attention to the matter in hand, and thorough discipline is the perfection of habit. Again, it is of great value for the lessons that it gives in the way of obedience to authority. This lesson is certainly well worth the learning, from whatever source it comes.

Preparing for defence is one of the ways of looking after the safety of our State and Nation. In the beginning of the late war, the great trouble was in procuring men prepared for action, and officers proficient enough in military tactics, to lead them. Months were consumed in preparation, which cost the Government millions of dollars. To prepare for such emergencies in the future, a law was passed allowing State organizations of militia, and requiring military drill in land-grant colleges.

It is true, we boast of our powers of arbitration and diplomacy in regulating State and national affairs, but the time has not arrived when it would

be the best policy to make plow shares out of our swords, nor has the peaceful little spider as yet condescended to spin a silken web over the cannoneer's mouth.

THE COLLEGE IN THE COLUMBIAN EXPOSITION.

BY PRES. GEO. T. FAIRCHILD.

WITHOUT entering into the details of what is done and to be done for a fair presentation of the College work in the Columbian Exposition, it seems well to recount the various ways in which the College is to show its relation to Kansas agriculture and education.

First, in the Kansas Building the College has a promise from the Commissioners of space for two cases each ten feet square for display of photographs, drawings, charts, samples of work, and other illustrations of special methods of training, with wall space for such samples of grain and other products as will serve in the general display for the State. With the general exhibit of educational interests, some space will be given to college work, statistics, and publications.

Second, in the general Educational Building space has been applied for to the extent of one hundred square feet on the floor, with clear alley, for an exhibition case to show the character and extent of the college work.

Third, in the Agricultural Building are to be typical exhibits of a Land Grant College and an Experiment Station, showing the best of all the fifty or more institutions of each kind associated under the Acts of 1862, 1887, and 1890. In these, each institution will have a limited space for showing its peculiarities, but all will be joined in various alcoves representing prominent departments of the work. The Kansas College and its Station have been selected for charge of the alcoves presenting Experimental Horticulture and Domestic Science and Art. The first will be arranged by Prof. Popenoe, and the last by Mrs. Kedzie, both having been commissioned for the purpose by the Department of Agriculture. All the other Departments are responding as desired to call from those in charge of the several alcoves.

Fourth, Pres. Fairchild has been appointed one of a special committee of five to arrange for the Agricultural Congress to form a complement to the great exposition of agricultural products, and become a part of the grand series of Congresses proposed for the season.

To perform fairly its part in all these places and ways, the College will be at some expense of time and means, and will need the support and encouragement of all its friends.

FARMERS' INSTITUTES.

BY PROF. J. D. WALTERS.

THE Kansas State Agricultural College has, ever since its foundation, recognized the farmers' institute as one of the best means to disseminate newly discovered facts and methods pertaining to agriculture and horticulture among those directly interested. Short conventions of the farmers of the vicinity of Manhattan were held at the College every few months as far back as 1864. The first well-organized and widely advertised farmers' institute under the auspices of the Faculty was held in Manhattan, January 2-10th, 1872. It was well attended by representative farmers from all parts of the State. During Anderson's presidency little was done in this direction, chiefly because the newly organized industrial departments demanded the undivided attention of the teachers; but upon the election of President Fairchild, the College at once arranged for the holding every winter of at least six institutes in as many different counties in the State, and increased the number a few years later to eight and still later to ten. A permanent Faculty committee was appointed to arrange with parties interested, and

there has been a great deal of enthusiasm within and without the institution with regard to this practical work. The farmers' institute has proved a valuable means for strengthening the tie between the College and its patrons and for bringing the best element of the youth of the State to its class-rooms.

The institutes are usually held during the months of December, January, and February at such times as may suit the convenience of the several localities; but application is required by the first of November, if possible. The plan or programme of these gatherings is very simple. They are meetings of farmers and their families with the representatives from the College for mutual discussion and information upon matters of interest in farm life, including the home. Every interested person becomes a member of the institute by attending, and may share in all the proceedings. The officers are selected simply to preside in the institute that the best results may be reached. They are generally men of wide experience and ready suggestion. The Institute includes four sessions, beginning Thursday evening and continuing through Friday morning, afternoon, and evening. This is as long a time as farmers can usually arrange to give to meetings, and gives the best results.

The order of exercises is very simple, presenting usually not more than two subjects in each session. This is arranged beforehand by agreement between a local committee and a committee of the Faculty, the one essential being that the community where the institute is held shall furnish one-half the papers or addresses, and be ready to take part in the discussions through questions and experience. The members of the Faculty take part in the discussions, as other members of the institute do. The local committee is required to secure a convenient hall, large enough to seat a fair audience, and to take special pains to advertise the institute several weeks in advance. If possible, the local papers are engaged to share in the general interest, both beforehand and during the institute. It reports of the discussions and the local addresses can be published, the profit of the institute is very greatly increased and extended.

The local expenses for hall, advertising, etc., are met by the Institute. The College sends three or more members of the Faculty, paying all their expenses.

During the last twelve years nearly one hundred of such "College Extension Courses," as these institutes might properly be called, have been conducted under the auspices of the Faculty in different parts of the State. There were held four institutes in each of the counties of Franklin, Jewell, and Wabaunsee; three in each of the counties of Brown, Finney, Marshall, McPherson, Nemaha, Osborne, Johnson, and Rooks; two in each of the counties of Clay, Cloud, Coffey, Cowley, Ellis, Elk, Ellsworth, Ford, Jefferson, Linn, Marion, Osage, Rice, Shawnee, and Trego; one in each of the counties of Atchison, Chautauqua, Cherokee, Geary, Dickinson, Harper, Jackson, Mitchell, Montgomery, Ottawa, Republic, Russell, Sumner, and Washington. Some fifteen or more institutes, attended by one or two members of the Faculty, are not enumerated in the statement. In most of the counties where these institutes were held, permanent organizations for effecting such gatherings once a year or oftener have been organized, and the reports from all parts of the State show that the good work has been and is still kept up by local effort. The literary institutions of the State feel elated over their lately achieved or still prospective success in University extension work; the Kansas State Agricultural College rejoices equally in the accomplished success of similar work among the farmers fruit raisers, and stockmen.

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.

Winter Term—January 9th to March 31st.

Spring Term—April 3rd to June 14th.

June 14th, Commencement.

1893-94.

Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

The Ionians and Hamiltons have rented a piano for the Society room.

The drifted snow seriously interferes with the work on the farm and gardens.

About 600 photographs of grounds, buildings, etc., have thus far been sold—chiefly to students.

Prof. Olin lectured last evening at Enterprise, Dickinson County, in the lecture course of that enterprising town.

Miss Kate Pierce, of Leavenworth, was a visitor at College on Thursday with her cousin, Kate Pierce, Third-year.

Prof. Hood visited Kansas City last week and purchased a thousand dollars' worth of pipe for the heating system in the new propagating pits.

W. H. Olin, '88, Superintendent of the Osborne schools, is taking an enforced vacation of three weeks, on account of the scarlet fever epidemic.

Professor Georgeson and Assistant Burtis attend the meeting of the State Dairy Association at Topeka, and both take part in the programme.

The snow of last week yet covers the ground, and although the roads have worn down too much for good sleighing, drifts from one to four feet deep are quite common.

By favor of Congressman John Davis, the library receives the *Congressional Record* (daily), which is prized highly by students who desire to keep abreast of the times in the affairs of government.

Mrs. Hood entertained the College ladies last Saturday afternoon in what, for want of a better name, shall be known as a "Columbian tea." At any rate, the thin wafer souvenirs of satin, a clever imitation of Corle's XXX, bore the word "Columbian."

Mr. M. H. Creager, of Jamestown, Republic County, visited his son, S. H. Creager, Second-year, this week. Another son, P. S. Creager, graduated in 1891, but this was Mr. Creager's first visit to the College, which he esteems for the growth his sons have made by its aid.

Pres. and Mrs. Fairchild are remembered by R. A. Clark, who went from College last year to be Instructor in a Mission School at Sitka, Alaska, with delightful Christmas souvenirs in the shape of a totem pole of white cedar, elegantly carved, and a silver spoon of Indian manufacture.

The railroads of the State have won the gratitude of students generally by extending the holiday rate of one and one-third fare for round trip to cover their entire holiday vacation. Tickets will be sold at Manhattan on December 23rd and 24th, good for return till January 9th, 1893.

Mr. Strickland and Mr. Wright, of Junction City, were visitors at the College on Wednesday, seeking information as to the best stock and methods for increasing the efficiency of their creamery. They are son-in-law and son of Hon. John K. Wright, recent Senator from this district.

The College Orchestra assisted the Ladies' Columbian Club of Manhattan in their Kirmess this week. The booths, the candy pulls, etc., have had the aid of some of the College girls, whose skill in the Domestic Departments come in play. The whole is rated a success, socially and financially.

Thursday morning's Chapel exercises were enlivened by a very sprightly and entertaining address of a few minutes from Archdeacon Brady, a visitor to Manhattan in the interest of the Episcopal Church. A brother of the Archdeacon, once a student at the College, will be remembered by students of 1881-3.

The greenhouse boiler gave out one day this week, and for awhile it seemed that stoves would have to be put in to maintain the midsummer tem-

perature required for the plants; but the genius of the Mechanical Department has succeeded in putting on a patch which may hold until the new heating plant can be finished.

The Fifth Division of the Third-year Class furnished the public entertainment yesterday as follows: "Who is Independent?" C. R. Pearson; "How Ruby Played," Sadie Moore; "Our Servility in Literature," H. G. Pope; "Sorrow for the Dead," V. I. Sandt; "A Noble Life," Kate Pierce; "The Battle at New Orleans," W. H. Steuart; "Nature's Teachings," L. A. Waters.

Prof. Georgeson's paper on "The Balanced Ration," read before the Stock Breeders' Association of Iowa, at Des Moines, was well received. The *State Register* and the *Republic* pronounce it "the most important of the session," and "the best ever before the Association." The experiment upon which the paper was largely based was pronounced "the most important experiment ever made at an Experiment Station in the United States."

The College has this week received a notable visit of two days from representatives of the State Agricultural College of South Dakota, seeking to find the secret of success, as they said, in building such an institution. The Committee consisted of Pres. McLouth, who has twice before inspected this College for a similar purpose, Hon. A. McIntrye of Watertown, member of the Board of Regents for State Institutions, and Hon. E. T. Sheldon of St. Lawrence, one of the Trustees for the State Agricultural College. They expressed great satisfaction in viewing the work of the various Departments of College and Station.

The students at Chapel have had unusual privileges this week in hearing from visitors. Wednesday morning Rev. Paden of Oakland Church, near Topeka, led the exercises, and Pres. McLouth of Dakota entertained the audience with reminiscences of an early visit to Kansas, when being wiser than he now is, though knowing a good deal less, he had asserted that the country west of Topeka was worthless. He had never dreamed that it could grow such a crop as the faces he saw before him. Now he is trying himself to model a college after the one which has grown up here in the supposed desert—one which he regards as the best of its kind.

An Illinois correspondent of the *Philadelphia Practical Farmer*, answering inquiries of a Kansas "would be gardener," offers the following among other suggestions: "Last, but not least, that he make a railroad trip of twenty miles or so to Manhattan, visit the Agricultural College, state to the proper authorities his object, and ask how best to handle the soil of Kansas under the proposed enterprise. He will learn more in a few hours from out-of-door college work than we could teach him in a page of this sheet. The Kansas College is the first among the few of these institutions which respect the condition of the land grant, endorsing and obeying the laws establishing them, and in so doing the Faculty and Trustees are engaged in a noble and beneficent work, which will go far to remove the limitation certain unfavorable conditions of climate seem to have imposed on Kansas agriculture."

It is reported that the financial agent of a Kansas denominational college (not a Presbyterian), in a public address, denounced the Kansas State Agricultural College, at Manhattan, as a seat of infidelity. He designated the Professor of Agriculture, when the fact is this gentleman is the Senior Warden of the Episcopal Church and Superintendent of the Sunday School. Statements as to other Professors were equally unfounded. There is room for honest difference of opinion about the duty of the State to support the higher institutions of learning. It certainly would be difficult, however, for the denominations to furnish the school that would do the work in industrial lines, of the State Agricultural College. The writer believes that a great majority of the professors and teachers of this institution are in sympathy with Christianity and the churches. It is no help to the work of denominational colleges to misrepresent State institutions.—*The Mid-Continent*.

GRADUATES AND STUDENTS.

Grace Wells, former student, was a visitor yesterday.

F. H. Morgan, student last year, was a visitor yesterday.

Miss Jessie Whitford and Miss Gundaker visit College yesterday.

T. J. Charles, student last year, orders the INDUSTRIALIST to cheer him in his absence from College on the home farm near Belleville.

W. J. Griffing, '83, contributes to the *Kansas Farmer* this week some entertaining notes on winter work for the horticulturist.

Marian Blachly, student in 1888-9, was married December 13th, to Mr. F. H. Seeley. The young folks will make their home in Washington, D. C.

A. R. Bradshaw, student last winter and spring, called yesterday to plan for continuing studies next term. He has been running a threshing machine this fall.

W. R. Browning, '89, is farming at Hamlin, Kan., and is Secretary of the Brown County Farmers' Institute, one of the largest and most successful in the State.

Sam Kimble, '73, was re-elected Attorney for Riley County, with a victory for his opponents on all the rest of the ticket. This shows well for his past success, and promises well for the future.

The INDUSTRIALIST was in error in quoting an announcement of the election of W. D. Gilbert, '74, as Judge in the Atchison District. The votes were on another ticket, and Mr. Gilbert is still independent.

L. H. Neiswender, '84, was married December 9th, to Alice Owen. The new family is at home three miles southeast of Silver Lake, Kan. Mr. Neiswender has been a successful farmer since his graduation.

T. H. Smyth, unable to remain at College next term to advantage, withdraws this week, feeling that he entered too late this fall to master his studies. He drilled in 180 acres of wheat before entering College November 1st.

H. M. Cottrell, '84, gives, in *Hoard's Dairyman*, an interesting description of how sweet cream butter is made at Ellerslie Stock Farm. The same number of the paper named contains an appreciative and flattering notice of Mr. Cottrell's abilities.

COLLEGE PHOTOGRAPHS.

For the benefit of INDUSTRIALIST readers who may want to purchase, the entire list of 262 photographs of College scenes is printed below. These pictures are mounted on cards 5 1/4 x 8 1/2 inches in size. They will be sent, postpaid, to any address upon receipt of price, as follows: Single photograph, 22 cents; 2 for 38 cents; 3 for 54 cents; 7 for \$1.08; 16 for \$2.17; 13 cents each for greater number. Where more than one photograph of the same subject is listed, the best one, in the judgment of the photographer, will be sent.

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No.

- 1 Nursery
- 2 Vineyard
- 3 Experimental peach orchard, May 3rd.
- 4-13 Japanese beans in plats.
- 14 General view of peach orchard.
- 15 Varieties of peach trees in peach orchard.
- 16 Peach orchard before being laid down, Oct. 29.
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- 18-19 Shorthorn cow.
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- 27 Aberdeen Angus bull, Rosebud's Boy.
- 28 Shorthorn bull, Craven Knight.
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- 45-47 Views of Manhattan from Prospect Hill.
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- 50 Manhattan water-works pump house.
- 51-59 Manhattan and surrounding country from Bluemont.
- 60-61 Manhattan public schools.
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- 63 " " " Presbyterian church.
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66	"	"	German church.
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69	"	"	Up the mouth of the Big Blue.
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71	"	"	Grange hall.
72	Chemical	class room.	
73	Chemical	laboratory.	
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78-79	Wood	working shop.	
80	Machine	shop class.	
85	Iron	foundry.	
86	Class	in physiology.	
87	Class	in English.	
88	Music	class room.	
89	Iron	shop.	
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92	"	"	composing room.
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113	Botanical	department, office.	
114-115	Residence	of the Professor of agriculture.	
116-117	President's	house.	
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123	"	"	third "
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129	"	"	"
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132	"	"	"
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256	Music	class.	
257	Cadet	band.	
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261	Alpha	Beta society.	
262	Ionian	Society.	

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

An Art club will be organized in Cottonwood Falls this winter.

The Emporia School Board allows teachers to make limited visits to schools in other cities, and allows their salaries to go on upon their making a certificate as to the number of hours spent in each visitation.

The Rev. Dr. J. F. Hendy, President of the Presbyterian College at Emporia, has tendered his resignation to take effect in January. Poor health is the cause. Dr. Hendy has been president of the college since the plans were laid out for the institution, and is probably one of the best known and best loved Presbyterian divines in the United States. He was one of the passengers on the plague-stricken ship *Normania*, and the long quarantine shattered his already poor health.

Edgar Harding, a Boston capitalist and philanthropist, bought the mortgage on Garfield University in Wichita to keep that institution of learning from being closed. Only the north wing of the building is completed, but that has been occupied for three years, now having over 100 students. Mr. Harding has let the contracts for the completion of the entire building. When finished it will be the largest and finest college building in the State.

Some friend in Rosedale sends us a number of the *Rosedalia*, a paper published every three weeks by the pupils and for the pupils of the Rosedale schools, Wyandotte County, Kas. It is a curiosity in most every respect. To begin with, it is printed with an Edison electric pen. In the second place, unlike several of its contemporaries at the Kaw's mouth, it confesses that it has but few subscribers,—sixty-eight in all. In the third place, it confesses that "Rosedale is situated between hills which are thickly covered with scrub oak, bare shrubs, and crooked saplings." The glory of the paper is its illustrations. It made the writer young again to see the new editions of his caricatures on "Pa's" barn door. There is the turkey, the dog and the cat, old neighbor Ezekiel, and four large profiles of the "Rosedale Principals" as they appear to the boys on the back seat. It is good, and costs only twenty-five cents for four and a half months.

FARM NOTES FROM VARIOUS SOURCES.

Not all farmers have been able to adapt themselves to the changed conditions of modern life, and seeing others prosper, they are dissatisfied and restless. This is not wonderful, for the changes have been great.

Many years since winter apples were packed in barrels from which lime had just been emptied. On opening them in the spring they were nearly all sound, while the same variety not thus packed were badly rotted.—*Samuel Edwards*.

While we believe that a farmer ought to raise everything that he can to supply the needs of his own household, for marketable purposes he ought to concentrate his efforts on a certain branch of farming and make that branch a specialty.

It pays to concentrate the products of the soil and sell refined products that carry the highest value with the least exhaustion of fertility. In one ton of hay you sell eighty-five times more from the soil than you will in one ton of fine butter, and you will probably get for the hay \$10 and for the butter \$450.—*Professor Robertson*.

The Department of Agriculture at Washington has taken hold of the bee-keeping industry in earnest. It intends to interest the farmers in bee culture, and for this purpose it has added to its scientific staff an expert in apiculture. We will now have experiments conducted on scientific principle, and the report of the department will be exceedingly valuable.—*Baltimore Sun*.

The farmer who lives most nearly independent of the storekeeper is the one who will come out with the best surplus at the end of the year. The first thing that one should aim at is to produce everything needed for family sustenance. With the expenses reduced to a minimum, it becomes comparatively easy to save something, even if crops are small and prices low. And it is at just such time that the man who "lives out of the grocery" finds that farming doesn't pay.

COLLEGE ORGANIZATIONS.

December 10th.

The Websters were called to order as usual at 7:30, with Pres. Dickens in the chair. After roll call, E. A. Freeman and A. B. Symms argued the affirmative side of the question, "Should the Protestant Churches be United?" They thought that the division of the Protestant Churches here in Manhattan was a good sample of what they meant. The work to be done here in this town could be efficiently handled by two or three fine, large churches. Such a condition would lighten the expense and yet enable them to have the best of preachers. The effect of this division is also felt in mission work. The heathen very soon get the idea that each branch has a God of its own. A united church would also prevent jealousy, now existing between the various branches. On the other side, C. E. Shoup and C. H. Bell said that where there were but one or two churches in a town that many persons would find none to suit their religious ideas, and so would join none, whereas having each of the denominations represented, enables a person to find doctrine to suit him. It should not be the duty of the missionary to preach to the heathen till after they have been educated, then they will more readily understand the nature of a God. Instead of sending money to the missionary, it might be used at home to good advantage in building up some of our Church interests. There might be no jealousy between the

different Churches, but there no doubt would be in the one Church established. The Society decided the question in favor of the negative. An essay by F. M. Alman, and a declamation by A. Smith, were followed by a discussion on the "Oyster Industry of Chesapeake Bay," by J. M. Harvey, in which he told us many new and interesting things. After a recess of ten minutes, the Society listened to music by a Webster Trio. The news of the week was presented by C. H. Stokely. Unfinished and new business. Adjournment.

E. A. D.

December 2nd.

The Ionian Society came to order at the usual time, with President Knickerbocker in the chair. After congregational singing, Kate Pierce led in devotion. Emma and Minnie Finley were initiated. A historical essay on "The World's Fair" was read by Miss Mudge. This, and the Oracle by Miss Hoyt, were left over from the previous week's program. The Society adjourned for a few minutes to have their picture taken. After the members had reassembled, the program of the day was taken up. It was extemporaneous, and proved enjoyable as well as profitable to all. Mary Lyman was called on for a vocal solo. Kate Pierce told an interesting experience in her past life. Nora Newell reviewed one of Scott's novels. Next was a medley by Misses Lyman, Pierce, Wilson, and Newell. Kate Pierce "came out ahead" on "America." Margaret Horn delivered a declamation, "The Lovely," in German. This was followed by extemporaneous speeches from Misses Norton and Hartley. Laura Day related past experiences in Western Kansas. This closed the program. After business of the day, the Society adjourned.

F. C.

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THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, DECEMBER 24, 1892.

NUMBER 18

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

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Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institutes should be addressed, as early in the season as possible, to the President.
The Experiment Station should be addressed through the Secretary.

MILITARY GYMNASIA.

BY PROF. E. B. BOLTON,
Captain 23rd Infantry, U. S. A.

ARMIES, like other bodies which indulge in undue enthusiasm at times, are now adopting the gymnastic fad; and, of course, the United States Army must be in fashion.

Military training and gymnastics have always been associated in the popular mind as co-ordinates; but, though enthusiastically appreciated now for many years, gymnastics scarcely found a place in the popular mind of military men. It may be interesting, then, to review, briefly, the ancient lineage of these two functions in search of a reason for this association.

There are three great periods in the history of military training which are marked by the source from whence force was obtained to inflict bodily injury on an enemy; and the weapon, or device for utilizing this force, stamped its influence on the gymnasias of that day.

These forces are known, in the order of their adaptation as muscular, mechanical, and chemical. A fourth, electric, is now being rocked in the cradle of experiment to determine a practical weapon with which to utilize its death-dealing capacity; and may, before the close of this century, completely revolutionize the present methods of military training.

Muscular force marks the first period; such, for instance, as a blow with the fist, a kick with foot, a bite with the teeth, a scratch with the nails, a gouge and laceration with the fingers, a crush by hugging, etc. The lower order of animals, with few exceptions, have never progressed beyond this period. But the intellect of man soon taught him to utilize his muscular force to better advantage by employing it only in developing the natural forces, and in controlling their effects in a manner to multiply the intensity of his own, as in the blow with a club, the throwing of stones, the casting of javelins, the liberating of boulders from mountain tops to crush the defenceless heads of an enemy beneath, etc. This character of weapons necessitated combat at close quarters; and victory favored the strongest men, which naturally suggested the idea of a military training that would enable them to work in harmony, and derive the best results from a combined expenditure of effort. To this same end, they were encouraged to practice, at leisure moments, a system of gymnastics, or series of games, consisting of lifting, boxing, wrestling, hurling, etc., which tended to cultivate a physical development known as main strength.

The second period exhibits a still higher display of intellect in the ingenious mechanical devices for developing the forces of nature, and in utilizing their terrors with more dreadful effect, as in the battering ram, by which immense stone walls were crushed to atoms, the catapult, the sling, the dart, the bow and arrows, etc.

This character of weapon indicates fighting at a distance; in which skill, rather than the clumsy blow, won the day. Military training had to accommodate itself to a method best calculated to suit the weapon; and a lighter physical exercise demanded a system of gymnastics, or games, consisting of running, leaping, dancing, fencing, etc., which tended to cultivate feats of agility rather than main strength, especially in the time of knightly prowess immediately following, when the sword of a Saladin and the battle axe of a Richard became the fad, and the beau-ideal of a valiant warrior was a soldier on horse-back.

The third period dawned with the introduction of gunpowder, that crowning glory of warfare,

whose powerful expansion, under the influence of chemical affinity, created a force which has wrought the most wonderful revolution in the order of military training. But it relieved the strain on personal powers, and created a positive reaction in that line of culture, simply because it was found to be possible for a bullet, fired from a weapon in the hand of a boy, to execute fully as much damage as one from that in the hands of a giant. Thus military gymnastics, except the art of fencing as a requisite accomplishment in the code of honor, fell into disrepute, and lingered for a long time only in the practice of the weak and fragile as a medicine for the sake of health. The introduction however, of Napoleon's tactics, about the beginning of the present century, followed later by Grant, Sherman, Stonewall Jackson, Von Moltke, and Skobelleff, clearly demonstrated that brilliant maneuvers involving rapid marches and exhaustive rushes can accomplish more than the stand-up-in-line-and-shoot-at-each-other principle. But to endure such hardships and physical strains requires a perfect physique. Hence, the resort again by armies to the military gymnasias for the acquirement of firm muscles, supple joints, stout heart, and expansive lungs, which develop the desired physique of a soldier.

OUR STANDARD.

BY C. F. CASTLE, '95.

IT is easy to drift with the current, to rush with the crowd, to do as other people do; but when it comes to matters pertaining to home, school, and business life in the world, what is it to live, and what shall be our standard in these different walks of life? The fact is, as you have heard over and over again, that soon we are to take up the burdens dropped by those who are passing away, and carry them on.

In the home life, the responsibility rests with the parents as to what the standard shall be; but with school life comes a responsibility which belongs to one's self, and with it begins the ideal of life which each attains for himself. Is it our ideal to have high grades at the expense of principle, instead of obtaining them by hard, earnest labor? With an innocent expression, a schoolmate once said to me, "My grades in such a study were 96, 97, and 98." Had I not known they were obtained through fraud, I could have rejoiced with her; but it was with pity for her, since I thought of her standard through life.

As long as time lasts, there will be questions facing us, questions that cannot be answered and settled by quick intellects alone, and only those that can be trusted will be given the places of trust. What would have become of the slavery question had there not been a William Lloyd Garrison, who was willing to be called a fanatic, willing to be persecuted, that he might help crush one of the monsters that threatened to destroy our freedom as a Republic? It was at the cost of life that Lincoln stood by his high standard of right, but it paid.

There are questions today of just as much importance as the slavery question, although they do not affront us with quite as dreadful an aspect, yet the evil is in them, and must be met. I have in mind the temperance question, Sunday desecration, and others that pertain to the dealings of man with man in the business and social life. As to the Sunday question, public sentiment is swinging away from the Christian Sabbath, and there needs to be a bracing against this immoral drift. It is not simply to decide whether it is easy or convenient, but what habits are we forming? How are we influencing the future? Not only on

account of individual effect should we brace against this downward tendency, but to help maintain our Christian civilization.

The coming test as to the opening or closing of the World's Fair on Sunday will show our standard as a nation—Christian, so-called. There still is a determination on the part of those who are lawless and weak of principle to have their way. And what is their main motive? Revenue. Some one has asked, "Is not this craze after money, pleasure, and votes the cry of starved souls who have come to the conclusion that virtue does not pay?"

When will the nations learn that there is a reason why these laws of right should be maintained and nourished? Are men so blind that they cannot see and understand "that God's law is to be preserved, or disaster will follow?" The history of the world has shown that "nations, as well as individuals who forget God, must die." Now it rests with those who are beginning life to set the standard high, that when they take their places in the world they will be already fitted for them, and braced against evil in whatever form.

MALLEIN.

BY PROF. N. B. MAYO.

SINCE Prof. Robert Koch discovered and brought prominently before the medical profession a substance called tuberculin, for the diagnosis and treatment of tuberculosis, or consumption, investigators of animal diseases have been quick to take advantage of this discovery, which opened a broad and fertile field. As a result of their investigation, a substance called mallein has been obtained, which promises to be of great assistance in the diagnosing of glanders and farcy. Mallein is a chemical substance, produced by the decomposing action of the germ of glanders (*bacillus malleus*) upon animal substances. For use in medicine, it may be prepared as follows: A flask filled with sterilized beef broth is inoculated from a pure culture of the germ which causes glanders and farcy. The germs are allowed to grow as vigorously as possible. During their growth they decompose the beef broth, using some for their own nourishment, at the same time producing in the broth a chemical substance, ptomaine, which is called mallein. After the germs have made all the growth possible, they are destroyed by heating, or else the broth is filtered through a Pasteur filter, which removes all germs. The broth is then evaporated and brought to a certain standard by adding glycerine when it is ready for use.

One theory of the manner in which germs produce a disease is that they excrete a poisonous substance within the body of individuals attacked, and this poison produces the disease. When mallein was first discovered it was hoped it would prove of great benefit in the treatment of the practically incurable disease, glanders, or farcy. While there has been much disappointment in this respect, it is yet too soon to venture an opinion as to how useful it may become. In diagnosing glanders, or farcy, however, it promises to be of great value.

Every veterinarian has realized the difficulty of diagnosing obscure cases of glanders and farcy. There have been no certain symptoms in the early stages of the disease upon which to base a positive opinion. He does not wish to condemn an animal until he is certain it is suffering from glanders, or farcy, nor does he wish to allow a horse, suffering from this disease, to remain as a source of infection, not only to other horses, but man as well.

In using mallein as a test for the glanders, or farcy, it is injected beneath the skin. If the animal is suffering from the disease, a marked rise in temperature, say 2° F., would be expected. If it

has not the disease, no difference, or only a very slight rise of temperature, would be noted.

The first animal tested was a black draft horse of phlegmatic temperament and in good condition which exhibited symptoms of farcy. His temperature was taken the day previous to making the test for comparison. Two c.c. of mallein were injected, but no rise of temperature followed, although there was considerable swelling at the point of inoculation. Another case tested was an aged "trading" pony which exhibited marked symptoms of glanders. The same test was made, and a rise in temperature of $2\frac{1}{2}$ ° F. was noted. There was no swelling at point of inoculation. Inoculation of a guinea pig with virus from the pony's nostril, and post mortem examination, confirmed the diagnosis of glanders.

Tests made by other veterinarians show a marked rise in temperature in glandered horses and also, occasionally, in apparently healthy horses, with much swelling at point of inoculation in glandered horses. The only two tests that I have had an opportunity to make agree with those made by others as far as the temperature reaction, but not as regards the swelling at point of inoculation.

It will take many tests and careful observations before we can be certain as to the value of mallein in diagnosing glanders, or farcy. It is to be hoped that it may fulfill the hopes entertained of its value in diagnosing this obscure disease.

FARMING FOR BOYS.

In the first place, the profession of farming,—and I place especial emphasis on the word profession, for one cause of depression in the farming community is that they have allowed their business to dwindle to an unlearned vocation rather than magnifying it with the more honorable title of profession,—like all the others, promises me nothing only as I am content to labor and to wait. In spite of youthful hope and ambition, there are no short cuts to wealth and honor. He who arrives at distinction before his time is unable to meet the competition and responsibility connected therewith. He is like a man who has never fired anything larger than a musket, going into battle to serve as an artilleryman. Wealth is gathered according to the principle of induction. Cents are generalized into dollars; dollars into hundreds; and hundreds into thousands. Likewise, independence and content are conceptions in which well-plowed furrows, apprentice shops, and book-keeping desks are developed into golden harvest fields, busy factories, and banking offices. "Better slow than never," may be wisely changed to, "Better slow than too fast." Build slow, build sure, and build for eternity.

Farmer boys develop into men of backbone and citizens of honor. So axiomatic is this truth that it needs no demonstration. One of our ambitions is the accumulation of a fair share of wealth. By way of the farm is perhaps not the quickest route to affluence; neither are there many millionaire bank accounts to be found at the end of it. But the fact that here is gained a sure competence—the golden mean which escapes both the Charybdis of poverty and the Scylla of great riches—is too often deemed not worthy of consideration. With care and economy, no farmer need despair of making a good living. There are fewer financial failures and more comfortable fortunes made on the farm than in any other productive profession. Compare a farmer's profits with those of a merchant. My father, who is a farmer, values his capital stock at \$4,000. Let us suppose that a merchant lays out an equal amount in a store and general stock of goods. By careful itemizing and calculating, leaving out the cost of clothing and value of time in each case, I find, after deducting the value of fuel, table fare, stock feed, and the expenses of hired help, and the wear and breakage of machinery, that the former clears a net income of $7\frac{1}{2}$ per cent on his invested capital; while the latter, supposing that he has 20 per cent income from his, must needs have his table not nearly so bountifully laden, and is compelled to use close economy in other ways, in order that the net in-

come may cover the out go. Then, contrasting the worry and anxiety of a merchant's life with the quiet and independence which the farmer enjoys, I conclude that the agricultural profession promises me a surer livelihood, with something left over and more enjoyment with it.

Then the business of farming assures me health. The latter's code of laws consists of proper exercise, pure air, wholesome food, and freedom from anxiety. These are coincident with farm life. It also promises to surround me with beauty. The glistening, ice-clothed forest is more beautiful than a royal palace. The art galleries of the sunset surpass in perfect beauty and enchantment those of Paris, Dresden, and Berlin. I have music in the call of the partridge, the robin's song, and the whistle of the mocking-bird. For perfume I breath that which comes fresh and unlimited from the manufactories of nature—incense from the censors of morn and fragrance from dew-splashed flowers. "An educated farmer;" the phrase sounds odd, but it ought not to. An education on the farm has hitherto been considered an altogether unnecessary and burdensome possession. The talented son has been given an education and then encouraged to seek his fortune as a banker, lawyer, or doctor, instead of remaining to honor and enoble his father's profession.

Farmers' boys have, as a rule, succeeded in all occupations; but how much more able, influential, and respected would the farming community be today if it were made up of those same talented and educated sons. If my education will aid me in other vocations, why will it not serve me as well as a farmer? That is a fallacious doctrine which teaches otherwise. Is not the knowledge of agricultural chemistry, methods of plant growth, and the nutrition of foods of practical use? An educated mind, that is, an athletic mind, is trained to think. Does it not pay the farmer to think? During the long winter evenings I can formulate my politics according to the principles of national economy, and surrounded with my books converse with the wisest of sages and philosophers. Some one asked the celebrated artist Opie by what wonderful process he mixed his paints. "I mix them with my brains, sir," he replied. What unproductive, mortgaged farms need is not so much political as brain fertilizer. Experience has given to educated brain the reputation of being the best brand on the market. Then again, I conclude that the farming profession gives me an extra assurance of success because of my education. Finally, summing up all the promises a comfortable fortune, wealth, independence, beautiful surroundings, and opportunities for mental development—they amount to content. This last multiplied by years gives a happy life as a product.—F. H. Peeler, in *Farmer's Tribune*.

ABOUT THE SCRUB.

We abuse and revile the scrub on every opportune occasion, says the *Western Farmer*, and the scrubber the scrub may be, the meaner the treatment we bestow upon it. Miserable scrub! And yet who made the scrub? If it were not for man's negligence and inhumanity to his animal possessions there might not be any scrub stock in our country. A choice selection of sires and dams, good feeding and housing, and good treatment generally, would in time breed up the quality of the scrub herd to one of first-class merit. Neglect and vicious breeding and management makes the scrub. Bad treatment will, in time, transform the choicest herds of thoroughbreds into the most inferior grades of live stock. The scrub is a living example, a monumental reminder, of misjudgment, indifference, neglect, lack of intelligence, intelligence unutilized, shiftlessness, non-appreciation of the rules that underlie civilized, progressive, and economic stock breeding. The scrub is but the result of the owner's and the breeder's misused advantages and opportunities, illustrated as a living example in the flesh to remind the world of its folly.

PERFECT BOOKS RARE.

It is said that a Spanish firm of publishers once produced a work in which one letter only got misplaced through accident, and this is believed to have been the nearest approach to perfection that has ever been attained in a book. It is further stated that an English house had made a great effort to the same end, and issued proof sheets to the universities with an offer of £50 if any error was discovered in them, but in spite of this precaution several blunders remained undetected till the work was issued from the press.—*Notes and Queries*.

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.

Winter Term—January 6th to March 31st.

Spring Term—April 3rd to June 14th.

June 14th, Commencement.

1893-94.

Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds at ~~ppr.~~. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Mr. Roy Pound, of Topeka, visited College Tuesday.

The INDUSTRIALIST, like the students, will take a vacation next week.

Mrs. Kedzie is appointed by request to assist in a Farmers' Institute at Edgerton.

Miss Rosa Sutton, of Iowa, guest of Clara Newell, First-year, visited College Tuesday.

Miss Gertrude Griffin, student at Washburn College, visited friends in College on Monday.

Misses Helen Green and Lottie Robinson, of Bethany, visited with College friends yesterday.

The exercises of the fall term closed yesterday at 12:10 o'clock, examinations being held Thursday and Friday.

"Individuality in School Matters" is the title of a paper to be presented by Prof. Olin before the State Teachers' Association next week.

Prof. Georgeson will discuss "Dairy Institutes" at the meeting of the Improved Stock-Breeders' Association in Topeka, January 10th and 11th.

Professors Georgeson, Graham, and Mayo attend a Farmers' Institute this week at Sharon Springs, Wallace County, near the Colorado line.

On Wednesday morning student editors of the INDUSTRIALIST were elected for the winter term as follows: Edith McDowell, M. F. Hulett, and C. H. Thompson.

Mr. S. S. Kirkpatrick, of Fredonia, called at the College on Wednesday to visit with his sons and see something of the institution of which he has heard so much.

Prof. Georgeson explained and illustrated, in a recent number of the *Breeders' Gazette*, the new cattle tie which he some time ago devised and adopted for use at the barn.

The driveway from the main building east ofers as good coasting as it did four years ago, when it was occupied by toboggans almost constantly outside of recitation hours. Has coasting lost its charm that nobody slides now?

Mr. Jas. P. Easterly, editor of the *People's Advocate* of Marysville, found time to visit the College between trains on Wednesday morning, and promised to repeat it when he has leisure to examine what he scarcely saw in outline.

Farmers' Institutes have been provided for as follows: At Edgerton, January 4th and 5th; Oneida, January 10th and 15th; Stockton, January 19th and 20th; Hiawatha, January 19th and 20th. Members of the Faculty will take part in all.

The three hundred and twenty graduates of the College are well worthy of a representation upon the Board of Regents. It is to be hoped that the Governor will serve the best interests of the institution by recognizing the claims of these representative citizens when he makes his appointments.

Students are agitating the question of uniform for the whole body of young men, asking the Faculty and Board to prescribe the style and quality now worn by the Cadets in drill, and require all students hereafter to purchase and wear the same. A Committee of the Faculty has been appointed to confer with the students through their committee, with a result, let us hope, satisfactory to all concerned.

On November 15th, the editor took a bird's-eye views of the Kansas State Agricultural College and of the Manhattan public schools. The grounds around the College are a lovely piece of landscape, and are to the building a handsome and worthy environment. The view from the College is one of the finest in the land. The work inside the building is done with spirit and

the understanding, thoroughly and conscientiously. During twelve years' experience as county examiner, we had many opportunities to test the value of the work done at the Agricultural College, and the results were always satisfactory.—*Western School Journal*.

Contributions from the U. S. National Herbarium, Vol. I., No. 6, has just been issued. It contains a list of plants collected in Southwest Kansas, Oklahoma, and Northern Texas, by M. A. Carleton, in 1891. *Ipomoea Carletoni*, a new species of morning glory, is here described. The volume also contains a paper by Mr. Carleton entitled, "Observations on the Native Plants of Oklahoma Territory and Adjacent Districts."

The College Orchestra numbers twenty-two members, and consists of the following students, with Professors Brown and Walters: E. J. Abell, D. C. Arnold, W. E. Bryan, A. J. Bittman, Elsie Crump, L. E. Clemons, J. Doan, E. L. Frowe, M. M. Farwell, J. E. Hayes, C. D. Lesley, G. B. Norris, R. J. Peck, C. H. Paul, Maude Parker, J. D. Riddell, Grace Secrest, C. E. Shoup, W. E. Smith, and Hilda Walters.

Horticultural note in *Kansas Capital*: "Prof. Mason advises that more attention be paid to the improvement of some of our native fruits. As promising subjects for improvement, he mentions the sand cherry, which grows extensively in the northwestern counties; the persimmon, which is found in the southern part of the State, and the wild grape, which is found in Cherokee County and north from there along the eastern border of the State."

In reporting the proceedings of the State Dairy Association, the *Kansas Capital* says: "Prof. C. C. Georgeson treated the subject of 'Dairy Institutes,' and urged the necessity of their establishment among farmers. He seemed to think that the greatest obstacle in the way of the plan is the difficulty in obtaining a sufficient number of qualified instructors. His recent visit to Iowa, and his observation of her system of dairy work, have convinced him more than ever of the necessity for systematic education as the foundation of success in the dairy business. He also favored the establishment of a dairy school at Manhattan. F. C. Burtis, Assistant Agriculturist to the Experiment Station, told the meeting of 'A Dairy Test of Soy Bean Ensilage,' which is now in progress at the Station. The results of the experiment so far speak very favorably for the feeding value of the new Japanese beans on trial at the Station."

The arrival of the Kansas City Commercial Club at Manhattan on Saturday noon last was the signal for a busy bustling at the College, for with consent the business men of Manhattan had contrived to capture the whole fifty for a visit to the College. At ten minutes after twelve the carriages began to arrive, and soon all were greeted by members of the Faculty and gathered in the College reception room where the post-graduate class in cooking under guidance of Mrs. Kedzie and with aid of Mrs. Winchip had loaded a table with sandwiches, hot biscuit, and cake to be served with steaming coffee to the guests. In less than a half hour all had tasted the samples of our kitchen laboratory, paid their best compliments, and started on the round of inspection. An hour's hurried march from room to room and building to building enlivened by exclamations of surprise at the work provided for and the numbers in attendance brought all too soon the hour of departure. Most of the Faculty were in their workshops or attendant upon guests, and found the Club most agreeable visitors. The College is grateful for the visit, and grateful to the thoughtful townspeople who brought such an energetic body of business men to our halls.

GRADUATES AND STUDENTS.

H. E. Brown, student in 1890-91, visited College this week.

H. W. Mattoon, Second-year this term, is spending a few days at College.

Invitations are out for the marriage of Bertha Gundaker, student in 1890-91, to Mr. Walter J. Parkerson, December 28th.

Martha Campbell, First-year in 1890-91, is visiting friends at the College. She is teaching the home school at Wall Street, Linn County.

P. S. Creager, '91, will present a paper entitled "Economy and the Balanced Ration," before

the meeting of the Improved Stock-Breeders' Association, which convenes in Topeka January 10th and 11th next.

Cards just received announce the approaching marriage of G. J. VanZile, '90, and Mary Pierce, Second-year in 1890-1, on December 28th, at the home of the bride in Winfield, Iowa.

C. P. Hartley, '92, is reported to be suffering still from the illness which came upon him about Commencement time. His friends are anxious as to his recovery.

Miss Carrie Ipsen [student in 1888-9], writes from Austin, Texas, that she is pleasantly situated in that charming winter resort, and is already feeling much better. Her many friends here hope for her permanent restoration to health. Laura Rolander is with her as a companion.—*Olsburg News-Letter*.

W. A. Corey, '84, writes from Salt Lake City: "I am not teaching this year, but am devoting all my time to the management of the *Inter Mountain Educator*, and I find myself fully occupied. Am succeeding beyond my highest hopes. The circulation has more than doubled in the past three months, and prospects are good for the future."

Prof. L. E. Eddy and Miss Julia A. Greene [Second-year in 1889-90] were married in Leavenworth November 11. The groom is well known in this county, having been Principal of the Attica schools for three years. The bride is a daughter of Hon. A. R. Greene, Commander Kansas G. A. R. They will reside in Burlingame. Mr. Eddy is Superintendent of the Schools there.—*Harper Sentinel*.

W. H. Olin ['88] of Osborne, discussed "The Use of Literature in Teaching History." "History is the record of man's efforts to realize his idea of freedom. The human race has ever preferred freedom to slavery, but we must distinguish between liberty and license. To a people's literature we must look for their history. The literature of a people is the basis of the historian's knowledge, and why deny it to the pupil? The idea is reached and made plain by letting the people themselves tell the story in romance, poem, and song."—*Western School Journal's Report of Northwestern Teachers' Association*.

COLLEGE ORGANIZATIONS.

Student Editors.—E. C. Abbott, Laura Day, A. Dickens. Scientific Club.—President, J. T. Willard; Vice-President, Minnie Reed; Secretary, Marie Senn; Treasurer, C. H. Thompson. Meets on the fourth Friday evening of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Alpha Beta Society.—President, J. E. Thackrey; Vice-President, Maude Parker; Recording Secretary, Ivy Harner; Corresponding Secretary, W. H. Phipps; Treasurer, C. C. Smith; Critic, Matie Toothaker; Marshal, Ellen Halstead; Newsman for first half term, Martha Cottrell; Newsman for second half term, Elva Palmer; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

Webster Society.—President, A. Dickens; Vice-President, M. W. McCrea; Recording Secretary, F. W. Ames; Corresponding Secretary, E. A. Donaven; Treasurer, John Patten; Critic, M. F. Hulett; Marshal, E. H. Freeman. Board of Directors, G. K. Thompson, C. A. Kimball, M. W. McCrea, T. W. Morse, B. F. S. Royer. Meets Saturday night at 7:30 o'clock. Admits to membership gentlemen only.

Hamilton Society.—President, E. C. Abbott; Vice-President, T. E. Lyon; Recording Secretary, W. Joss; Corresponding Secretary, I. Jones; Marshal, R. J. Barnett; Critic, W. E. Smith. Board of Directors, C. R. Hutchings, J. D. Riddell, D. S. La Schelle, J. A. Scheel, T. E. Lyon. Meets Saturday evening at 7:30 o'clock. Admits to membership gentlemen only.

Ionian Society.—President, Maude Kueckerbocker; Vice-President, Elsie Crump; Recording Secretary, Lorena Helder; Corresponding Secretary, Florence Corbett; Treasurer, Elen Norton; Marshal, Edith McDowell; Critic, Laura Day; Board of Directors, Blanche Hayes, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

Every chair in the Hamilton Society Hall was occupied when President Abbot called the Society to order. G. L. Melton led the Society in prayer. After a few words of welcome to the visitors by Pres. Abbott, the program of the evening was taken up. Music by Hamilton Orchestra; F. R. Smith, committee. P. A. Rogers' declamation was a selection entitled "Roll Call." G. G. Boardman presented an interesting essay on "Individual Independence." V. I. Sandt and O. R. Smith argued the affirmative of the question, "Are Sectarian Schools a Hindrance to Free Thinking?" and the negative of the question was presented by W. L. Hall, assisted by E. L. Hougham. The question was discussed from all sides, and the Judges, Mrs. Kedzie, Miss Horn, and Miss Mudge, decided two to one in favor of the affirmative. Instrumental music by Leslie Smith, G. Norris, and T. E. Lyon. G. L. Melton presented a very good number of the Recorder. G. Norris's declamation was a description of the Meltrudies and their ghost. A. D. Benson dealt with the origin, present, and future of the "prep." The Society passed to unfinished business, several committees reported, and the Society adjourned at 10:15.

December 17th.

The last session of the Alpha Beta Society for the fall term was called to order at the usual time by Pres. J. E. Thackrey. A trio by the Misses Cottrell opened the exercises. Mr. Hartzler led in devotion. In an oration, Mr. J. F. Odie told about the growth of Mormonism and the influence it now wields in some of the States and Territories. He said that it was dan-

I. J.

December 18th.

gerous to free institutions, and aimed at their destruction, the overthrow of our Nation, and finally to the subjection of the civilized world. He thought that Mormonism was an evil that should be destroyed at any cost. "The Memory of Our Fathers" was the subject of a reading by Miss Hartzler. "Resolved, that Ancient Patriotism was greater than Modern," was affirmed by E. J. Abell and Lulu Jackson, and denied by W. H. Phipps and Grace Secrest. Although the judges decided two to one in favor of the negative, the discussion was by no means a one-sided affair. The second division, W. O. Lyon, editor, presented the Holiday number of the Gleaner, and it was one of the best ever written, being a model paper in every particular. If there is one thing above others in which every member of our Society should take pride, it is the excellent Gleaners that we have issued during the term just closed. In not a single instance has it stooped to that low plane of ridicule and vulgarity that is so often heard in Society papers under the name of "fun." After recess, extemporaneous speaking, in which nearly all members took part, occupied a few minutes. Among the visitors were President Abbott, of the Hamilton Society, and President Dickens, of the Webster Society, each of whom spoke a few words in commendation of their sister Society and its work. Under the administration of President Thackrey, assisted by the other officers, and with the hearty co-operation of all the other members, the "A. B." Society has experienced a very marked and healthy growth in membership and substantial work during the term just closed. It is the purpose of every member to make our Society grow better each succeeding term, recognizing that it is a place for the development of true manhood and womanhood.

W. H. P.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Five new school buildings are going up this fall in Mitchell County.

The State University Glee and Banjo Club has started on its annual winter tour.

The County Superintendents complain that the teachers are very slow in sending in the class work for the Columbian World's Fair.

Junction City has 20 teachers (one to be added after January 1st, and two additional rooms are much needed) and an enrollment of 1000.

A new book called "Kansas Day" has been issued by George W. Crane, filled with pieces to speak at school on that memorable Kansas anniversary. The book is edited by F. H. Barrington, of Ness City.

Kansas City, Mo., records a considerable increase school attendance during the present year. The enrollment of the schools for the first term just closed was 15,925, nearly 1500 greater than last year. The high school has over 1000 pupils.

It is said there will be a contest over the office of County Superintendent in Lyon county. Mr. W. L. Huggins was elected by a majority of four, and his opponent proposes to contest the election on the ground of illegal votes cast.—*Capital*.

Manhattan has recently elected a Principal of High School, with a salary of \$65. Junction City pays its Principal \$100 a month, and eighth grade \$60. Grammar grades and primary work command \$50. Teachers in the intermediate work, after having taught three years in the schools, get \$50.

Only five County Superintendents out of 106 were elected last month for a third term. Their names are as follows: Miss Frances Katner of Doniphan county, J. R. Bickerdyke of Russell county, B. D. Vanorstran of Marion county, and S. P. Gebhart of Pratt county. The last named is a Populist and the others are Republicans.

The people of Topeka are to have another chance to vote bonds for a high school. The Board of Education has decided to ask the Mayor to call a special election for February 11, 1893. The building is to cost \$64,000, the furniture, \$5000, and the site \$21,000, a total of \$90,000. Besides this the people are to decide by their votes which of the corners at Eighth and Harrison shall be the site for the new building.

The programme for the State Teachers' Association of Kansas, to be held in the State House at Topeka, December 27-29, promises a profitable time, not only to teachers, but to all citizens. The railroads have promised all those in attendance reduced rates. On Wednesday evening the State University Glee and Banjo Club will give a free entertainment. The custody of the State teachers' flag and a teachers' library will be competed for again this year. Teachers and school patrons ought to consider the benefit of attendance, and to try to be present at the meeting.

About two hundred teachers and county superintendents gathered at Phillipsburg November 24, 25, and 26 to confer together concerning educational subjects. Two great events of the conven-

tion the writer missed; viz., Ignatius Donelley's lecture on Shakespeare, and ex-Governor St. John's address. The former was given Thursday night. The latter was not given, as the speaker could not come. Chancellor Snow gave his lecture on Bacteria. Such subjects as Barriers to Normal Training, The Ideal School System, and Weaknesses in our Present School System were treated in excellent papers and lively discussions. A complete, free, and well-arranged school system, based on just such taxation, seemed to be the desire of all, however much or little they might hope for it. Courses of study for high schools were considered, and some enthusiasm aroused regarding them. Very few schools in Northwest Kansas prepare for College. The Academy has a large field to draw from. Stockton public school was represented by Principal Louderback and wife and two other teachers: Academy, by its Principal and wife, one teacher, a few present and several former students.—*Stockton Academician*.

FARM NOTES FROM VARIOUS SOURCES.

The farmer's worst enemy, so far as transportation is concerned, is not the railroads, but the wagon road. And what he most needs to do is not to make war against the railroad companies, but to set about the business of transportation from the farm to the railway.—*Exchange*.

Of course farmers can work without the agricultural press; but as a matter of fact the farmers who stand foremost in their positions don't work without the agricultural press. A man can live without a hat or shoes, but the man who appears in society clothed and in his right mind never thinks of sparing these useful articles.—*Grange Homes*.

We hear it said that our country roads are so miserable generally after an ordinary rain at this season of the year that the railroads have actually been banking on the contingency of a good rain over the country that should put a stop to the marketing of grain and give them a chance to raise the blockade that has existed on account of the crowded condition of elevators and cars. This is a tough story on the wagon roads—tough because true.—*Nebraska Farmer*.

Country roads would present a much more hospitable appearance if owners would set a row or two of nut or fruit-bearing trees along the front of the premises. Afterward set another row along the lane, clear to the pasture and stall, another along the driveway to the barn. What objection can a person have to thus utilizing waste places?—*Indiana Farmer*.

Take a country boy for the first time to see the wonders of the town; he is bewildered, then amused; at last wearied, and then he wants to go home. But bring your boy to the green fields. Let him romp on the broad lawn, run up and down among the flower beds or by the stream; does he want to go home? Not a bit of it. And what is more, you can let him have his fill of such enjoyments, for you are certain it will never vitiate his tastes nor corrupt his heart, nor injure his mental, moral, or physical health.—*Nature*.

Farming, like every other industry, to be profitable must be done well. There are plenty of farmers, good men, too, if we speak of them morally and socially, who are so loose in their business relations that they are always a century behind the times. Many husbandmen who have started in life with nothing but ambition and determination, where others have failed with many superior advantages in a financial way, have made fortunes. It takes brains to manage a farm right. A farmer should make a study of the adaptability of the soil which he cultivates, always planting that which the soil will produce best without robbing it of all its strength and fertility. A little shrewd management is often better than a year's labor.—*New Hampshire Farmer*.

HUMBUG ABOUT MADSTONES.

The madstone story is going its rounds again. It is the property of this wonderful agent to stick to a raw surface of flesh and suck the poison out of it. That is, the owners say so. As a matter of fact, says the Brooklyn *Eagle*, no inorganic substance can suck except by the aid of machinery. Again, in ninety-nine cases out of a hundred the dog bites are harmless, and there is no poison to be sucked out. Thirdly, credulity is one of the most effective cures in the *materia medica*, and ought to

be used oftener where people have no real disorder.

The whole tradition of the madstone comes from the absorptive power of any anhydrous mineral. Such a stone is filled with pores, and by a process akin to that of capillary attraction, the water that it has lost—in the course of centuries, perhaps—it will soak up again when in contact with liquid. If one wishes to know the action of a madstone let him put a piece of tabasheer, or dry clay, or shale to his tongue. It will stick. That is all there is to it. There are millions of tons of madstone in every State in the Union, and every family can afford to be without it. These stories of mysterious stones that have come from the far east, or that were bought at enormous prices from voodoos and hoodoos and wizards are all humbug. If a person is bitten by a snake or a dog it will do him no harm to clap a chip of anhydrous stone to the cut surface. It will stick, just as it will to his tongue or his eye or a damp saucer or a Brooklyn street or the surface of a bar, but let him likewise consult a physician.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

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RELIABLE Boots, Shoes, and Rubbers, direct from the leading eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbia's World's Fair Atlas presented for \$10.00 in tickets.

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THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, JANUARY 7, 1893.

NUMBER 19

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Application for Farmers' Institute should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

ECONOMY AND ECONOMIC PRODUCTION.

BY M. F. HULETT, '93.

PUSH is the tendency of modern times. Dispatch seems to be the key-note to progress. Quick thinking and speedy action, accompanied by accurate judgment, are the requisites to successful competition, without which the highway of business prosperity, social advancement, or personal enjoyment would become a most difficult one to travel.

In our great-grandfather's time it cost less direct outlay to maintain a livelihood than it does now-a-days. A large number of the necessary articles of today that are manufactured by the million, and transported from coast to coast, were entirely the product of home skill and ingenuity then. They may have been very rude instruments at best, but they answered creditably the purpose for which they were made, for want of something better. The expense for such workmanship consisted simply of exertion of brawn and bone, supplemented by the will-power and energy to use them; and the man who possessed a sufficient amount of these very necessary elements lived in the realms of luxury. So long as he was enabled to continue the production of such life necessities, he lived and moved and had his being, and perhaps enjoyed as much of life as most of us do today. His existence, therefore, was not dependent so much upon those around him as upon his own individual effort.

But today a different status compels us to change our method of living. Our environment is such as to necessitate a more competitive system of production. The forming of large combines in the last few years has resulted disastrously to the independent producer until he is being rapidly pushed to the wall. We are divided into classes, and each class performs its particular kind of work, necessitating a dependence of one upon the other. What we produce goes on the market and brings what it will, and the other articles that we must have are shipped to us, perhaps from thousands of miles distance, thus giving rise to no inconsiderable outlay for transportation—an item of which our forefathers a few generations back need make no account.

The urgent need is a more economic mode of production and preservation. The bits and scraps that have been cast carelessly aside would assume enormous proportions if piled in a heap, though insignificant to a heedless observer. Skilled workmanship, founded upon enough forethought to see the natural outcome of a project, not only enhances greatly the true value of the article, but lessens the time expended in its production. If one's plans are matured before his muscular efforts are begun, there is little waste of energy in accomplishing the result.

Cheaper production of an article does not necessarily imply the manufacture of a worthless one. Its cheapness may depend upon a large number of conditions, examples of which are, the proper selection of material, maturity of plans previous to beginning operations, mode of applying energy, tools used and their condition; and the care of tools forms not a small item.

The practice so prevalent among farmers, especially, of leaving their implements to battle with the elements through the long winter, and whenever not in use, is one of the heaviest outlays which they sustain; but because the loss is not directly observed, they fail to recognize the destructive effects.

Economics generally demands better education. Knowing the causes and results of the natural forces, one is enabled to battle against their ad-

verse influence with effective success, and to appropriate their energy to a use which assures an income rather than an outlay. Economic education means economic production, and the one is a direct antecedent of the other.

COLLEGE APPARATUS AND LIBRARY.

BY PROF. J. D. WALTERS.

CAREFULLY made purchases of scientific apparatus, and untiring efforts in gathering natural history specimens, have gradually provided the different departments of the College with equipments valued together at more than \$100,000. Much credit for this is due to individual effort of the professors. The rapidly growing collections from the fields of zoology, botany, entomology, mineralogy, and geology have cost the College almost nothing. Not even the Board of Regents, perhaps, are aware of the *esprit du corps* existing among the Faculty with regard to this and other matters. The greatest need of a school of pure and applied science is, however, a large and well-selected library, and the establishment of this requires time and funds.

The library is almost wholly the growth of the last twelve years. It was moved to its present quarters in the northeast wing of the main building from the northwest room of the old Bluemont College building in 1878, by acting President M. L. Ward, who was the librarian from 1875 until 1883. It consisted, at that time, of less than 1250 valuable and well-preserved books; the remainder, some 800 volumes, were either entirely worn out or they are works of almost no use or value—old Greek and Latin dictionaries and commentaries, religious monographs, sermons, old and poorly printed fiction, government reports, etc.—a state of things not to be wondered at when it is remembered that the greater part of the growth consisted of donations, solicited in eastern States by President Joseph Denison and Agent I. T. Goodnow, and that during Anderson's presidency neither funds nor space were available for this purpose. From that time, however, there was rapid growth. Acting Librarian Prof. W. H. Cowles reported the number of books on the shelves, June 30, 1884, 5740 bound volumes, 1300 pamphlets, and several hundred duplicates. A card catalogue of topics, commenced by Prof. Cowles, was completed to date, in 1885, by the Acting Librarian, Prof. B. F. Nihart. Prof. D. G. Lantz took charge of the library in September, 1886. His first report catalogues 6572 bound volumes, 2350 pamphlets, and 360 duplicates, valued in the aggregate at \$10,358.51. In 1888 the number had grown to 7453 bound volumes, 2490 pamphlets, and 352 duplicates, with a total valuation of \$12,172.04, and in 1890 to 9749 bound volumes, 349 duplicates, and 3126 pamphlets—a total of 13,224, with a valuation of over \$15,000.

The last annual catalogue reports the number of books in the College Library at over 12,000 bound volumes and about 4000 pamphlets, valued at \$21,000. All the books are indexed in a card catalogue, so that the resources of the Library upon any subject may be readily learned. The students have free access to the book shelves, and may draw the books for home use, under simple and most liberal regulations. The College subscribes for the leading literary, scientific, and agricultural journals; while the principal daily and weekly papers of Kansas and many from other States are received in exchange for the College publications. The College has been designated as the depository of United States public documents for the Fifth Congressional District of

Kansas. About 1000 volumes have already been received on this account.

An approximate estimate of the number of books, including public reports and bound periodicals, by classes, is as follows:—

Classes.	Vols.	Classes.	Vols.
Agriculture	1,350	History	550
Horticulture	500	Biography	450
Mechanics and engineering	425	Geography and travels	300
Mathematics and astronomy	250	Dictionaries and cyclopedias	175
Physics and meteorology	345	Philology	100
Chemistry and mineralogy	300	Education	300
Geology	400	Law	80
Botany	400	Administrative reports	540
Zoology	300	Public documents on deposit	920
Entomology	125	Fiction, including juveniles	240
Physiology and sanitary sci.	250	Essays and literary criticism	300
General sci., proceedings, etc.	500	Poetry	100
Military science	150	Logic and philosophy	200
Domestic science	75	Religion and morals	500
Political science	325	Fine arts	200
Bound magazines	1,250	Miscellaneous	125

The library is in constant use by the students and the members of the Faculty. The report of the Librarian for the school year 1888-9 gives the total number of books drawn for home reading by students at 6777, and the total number for the school year 1889-90 at 7898—an average of over fifteen books per student. This does not include the books and magazines read in the library or reading room, nor does it include the current numbers of periodicals of any kind, since these cannot be taken from the reading room. The total of all State appropriations received for the library up to date is about \$6000. It is greatly deplored by the friends of the College that the State Legislature of 1891 was not able to find means to appropriate more than \$250 annually for the last two fiscal periods for this purpose. A student without books is like a mill without water or a stove without fuel. The great need of this College at this stage of growth is undoubtedly in the enlargement of its library facilities—it is more books and maps, and a new library building.

MAKE HAY WHILE THE SUN SHINES.

BY AGNES ROMICK, '93.

LIFE is short and very practical: so are the words constituting this subject. This age of the world is found to be in many respects unlike past ages, and calls for different plans. The world is rushing on at a fearful rate of speed, and he who would keep up with his fellow students must learn to think like lightning, be active and wise, and learn to travel fast.

It has been truly said that the time when a man could get rich by plodding along, without enterprise, or taxing of the brain, is past. It is not enough to have talents. We must have intelligence and original thought. Our talents, even if they be few in number, were given us for a purpose, and I think it our duty to improve every opportunity that comes to us, and so increase our talents. Every calling is filled with bold, energetic men who are always inventing something new. The man who sticks to the old-fashioned method, who runs in the rut and stays there for want of ambition and grit to pull him out, will find himself outstripped in the race of life, and may be heard to exclaim, "Where am I at?" Hence we find it necessary to keep our eyes open and our wits about us so that we will be ready to grasp new ideas while they are passing.

As the morning of a new year is dawning upon us we begin to make resolutions. If we seriously resolve to be energetic and more industrious during the coming year, we may have reason to rejoice over our wisdom to form and then act upon that determination. But all resolutions are only sentiments unless embodied in the acts of every-day life. Our anxiety over the condition of a friend is but an emotion unless it springs into actual happiness. And it is so with the little favors and privileges of life: if worthy, they are of value only when used; if neglected, the distance to possible good is widened, and

soon will be out of reach. It may be that you had an opportunity to do a kind act for a friend yesterday, but it was put off, thinking that it could be done at some more convenient time. You did not mean to delay so long, but you let it slip. It is so with life. "We pass this way but once," and while moving, "our passing moments shape our destiny for eternity." Then let us prepare to meet opportunities, and take them one by one. In the sunlight of these golden moments we may reflect our fidelity through the ages.

ECONOMY ON THE FARM.

When a boy at school, one copy given me in my writing-book made an impression which has never left me. The copy was,—" 'Tis education forms the common mind." Its application to my topic is in the thought that education as a source of farm economy is not appreciated as it ought to be. Our fathers used economy in many things, but economy that leans too close to parsimony has produced its fruit of an inheritance of impoverished farms, with cash and bonds, which in many instances took wings and flew away. Economy has been talked about and but little understood. Farm economy today means scientific application of principles to the farm which shall economize labor and increase fertility, and thereby production.

Many are improving the advantages offered by our agricultural colleges and experiment stations, whose bulletins are freely sent to every one for the asking, and are becoming apt scholars in farm economy to their profit and the increased fertility of their farms. The farmer must be studious and attentive to the needs of his farm and the best methods of cultivation. He should adapt his system of farming to the capabilities of his farm, taking heed to his market facilities, etc. The resources of his farm need energizing and the soil needs replenishing. As is true in the moral world that where idleness waits mischief lurks, it is true of the farm that for lack of proper cultivation weeds and thistles abound, to the injury of the crop. The question of economy is the vital question of every business of today. To the farmer it may seem unreasonable that greater economy is demanded than our fathers practiced. The question of how to expend a sixpence so as to get it back again, and yet have its full value in the soil, is nearer to the point than taking everything from the soil we can get and turning it into cash with a view to present gain.

The energetic young man who left the old farm to seek his fortune in other pursuits because farming was made abhorrent by his father's parsimony, having accumulated a competency, satiated with city life, turns to the country for recreation in farming. He cannot get into the same old rut where his father has been so many years. He takes and reads the agricultural papers and applies scientific principles to his farming operations and he is speedily set down as a book farmer and his neighbor prophets foretell his speedy ruin. Those farmers have been stepping-stones, and to day we have the application of a high agricultural knowledge. The care of stock as it is advised in the interest of farm economy would have frightened our fathers, with their ideas of economy. The stack in the meadow, the cattle feeding around it, with plenty of fodder regularly thrown over the fence and water from the frozen creek, was all care given, and the cattle were considered well cared for. Farm economy today says house them warmly, warm the water, and feed regular rations composed largely of highly concentrated foods. Each animal upon the farm is made a specialty, and thoroughbreds only are counted as valuable.

Special lines of farming are also advocated, and have, by the operation of the general law of trade, forced themselves upon the farmer. Railroads have cheapened transportation to the extent that the bulky cereal crops can be raised upon the broad prairies of the West so as to compete most favorably with the Eastern farmer, who has to pay local rates considerably higher in proportion. As system is necessary in every business, it holds an important place with the farmer. A systematic plan for the season's operations, well laid out, can be applied as well by the farmer as by the merchant, who must decide what goods and how much to buy to make a profitable season. The farmer who considers the market needs of the year, and plans to supply the greatest need, will earn the success which will surely reward him. The prompt man in any calling has an element of success which is especially valuable to the farmer. No one has greater need of decision of character

and will-force to promptly see the situation and to act accordingly than he. Many are prompt to duty when the season calls, but think that their financial obligations can wait their own convenience. It is very poor economy, and I believe there is no severer strain a farmer can give himself than impaired credit. The farmer cannot afford to lose his reputation for truth and honor.—*Daniel S. Baright, to the Dutchess and Ulster (N. Y.) Farmers' Club.*

EDUCATION AND LABOR.

It is sometimes stated that education disqualifies for labor. This is not true. Intelligence spurs to industry; ignorance breeds idleness, and false ideas foster it. Our poorhouses, our almshouses, our prisons, are for the ignorant. The false idea that manual labor is not as respectable as mental labor is often placed in the minds of children. Farmers send their boys off to college, not that they may become better farmers, but that they may become lawyers, physicians, or preachers. Mechanics send their boys to college, not that they may become better mechanics, but that they may be able to make a living without work. Girls are sent off to school, not that they, by increased intelligence, may be able to do better the work of life devolving upon them, but that they may appear better in society.

A practical education will enable its possessor to see life, not simply as existence, not simply made up of physical pleasures, but filled with usefulness, which is the true source of all deep and lasting joy. It matters not so much what studies are pursued to bring this development, so the development is reached.

In conclusion, we would say a practical education is that education which enables us to see our relation and our position, and our usefulness in God's infinite creation. 'Tis that education that most inspires and exalts. 'Tis that education that makes a human life of greater worth.—*American School and College Journal.*

THE FARMER'S WORKSHOP.

A man in any occupation who has lived long enough to possess experience and observation and fails to profit by the same has only himself to blame if he does not succeed in his business. The farmer, in these days of mechanical appliances, and when machinery performs a larger part of the work of the farm, who is not a fair mechanic, is certainly short sighted, to say the least. A writer in the *National Stockman* says: "The farmer who has no workshop, no place in which to employ his stormy days or odd minutes in necessary repairs, or the construction of necessary things, no place in which to keep tools and articles for repair for every ordinary emergency, is not fully awake to his own interests. The man who has few or no repairing tools lessens his powers, and, consequently, his usefulness, as the arts of neatness and dispatch in work often lie more in the possession of the proper instruments than in the man himself. Every farmer should have a workshop, a place for the business if possible; if not possible at present, then some easily accessible corner in a large building where tools may be kept for repairs of buildings, machinery, wagons, harness, fences, etc., and with room by the bench for the greater part of these repairs to be made where the tools are at hand, as a small piece of work will often call quite a variety of tools into play."—*Western Rural.*

MAKE IMPROVEMENTS.

Improve your farm. No farming pays that does not improve the farm. Besides, the money you put in the farm is safe, if the title is good. That bank won't break, or that boom burst. Beautify your home. It doesn't cost much, and it pays better than any other investment. Plant some vines, shrubs, and trees; prepare a greenhouse for flowers. Your children will be purer, better, and more happy for being raised in the midst of tasteful and beautiful environment. Make home a happy place, and cultivate in the hearts of your children a love for home. Don't be always grumbling about the hardships of farm life, until you drive your children away on a wild-cat chase after wealth that will wreck character and bring gray hairs in sorrow to the grave. God bless you, my farmer friend. The conservative influences that are to save the country from wreck by the unhealthy excitement and wild speculation of this age are in the rural houses of the land. Acquit yourself like a man, and preserve and improve the fair heritage God has given you.—*Exchange.*

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.

Winter Term—January 9th to March 31st.

Spring Term—April 3rd to June 14th.

June 14th, Commencement.

1893-94.

Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds at par. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Assistants F. A. Marlatt and F. C. Burtis each are enjoying new sleighs.

The report of the State Teachers' Association will be published in the INDUSTRIALIST next week.

Prof. Mayo will take part in a Farmers' Institute at Oneida, on Tuesday and Wednesday next.

The Third-year Mechanics Class try a new text-book this winter. James D. Dana is the author.

The Eighth Biennial Report of the Board of Regents is in type, and will be ready for distribution in a few days.

Ex-Janitor McCreary writes that he is working at bridge-building in Arizona, and that his health is better than it has been for two years past.

Professor and Mrs. Olin took their vacation in a Christmas visit in the home of Supt. A. S. Olin, of Kansas City, Kansas.

The Mechanical Department has been running a full corps of hands through the holidays, making general repairs, and completing the new propagating pits.

President and Mrs. Fairchild spent a week of the vacation at the State Teachers' Association and in a brief visit to their daughter's family in Kansas City, Mo.

Dr. Mayo will take part in the exercises of the Third Annual Meeting of the Kansas Improved Stock Breeders' Association, in session at Topeka January 10th and 11th.

Prof. Brown assisted the teachers and pupils of the Kansas Conservatory of Music in their Christmas concert. The Leavenworth papers speak highly of the entertainment.

Prof. J. T. Willard contributes to the December number of *Science* an article on "A Breathing well in Logan County, Kansas," which will soon be reproduced in the INDUSTRIALIST.

Prof. Walters visited Kansas City and Topeka this week on business connected with the publication of his Columbian History of the Kansas State Agricultural College about to appear in the Biennial Report.

Bulletin No. 35 of the Experiment Station is in the printer's hands, and will be issued soon. It comes from the Veterinary Department, and gives results of Dr. Mayo's study of lumpy-jaw, loco disease, and other matters of concern to livestock interests, with illustrations.

Mrs. Kedzie takes part in the annual Farmers' Institute at Edgerton this week by special request. This Institute is uniformly successful with or without the aid of the Faculty; but it has managed in some way to have one or more members of the Faculty in attendance each year.

On account of Prof. Georges' absence this winter, the young men of the Second-year Class will take Physiology this term instead of Agriculture, and the Fourth-year Class will take United States Constitutional Law instead of Zoology. Students of these classes will need to arrange for their books and assignments to accord with this change.

The State Board of Agriculture will hold its annual meeting at Topeka next week, beginning January 11th, and continuing three days. The College will be represented by Pres. Fairchild, in a paper entitled "The Kansas Farmers' College: Its Condition and Needs;" by Mrs. Kedzie, in "Teaching the Household Arts;" by Regent Wheeler, in "Fruit-growing on the Farm."

Prof. Georgeson left Thursday for Washington on the mission to Denmark. Correspondents on farm matters may address Farm Department, State Agricultural College during his absence,

and thus secure prompt attention. Any personal letters may be addressed in care of American Minister, Copenhagen, Denmark. The Professor's family remain at the College during his brief absence.

On New Year's eve, upon invitation, a number of the Fourth-year Class met at the home of Miss Laura Day, to watch the old year out. A pleasant evening was spent by the young people, with music, conversation, and refreshments. None the less interesting was the search for peanuts, which were hidden in various parts of the room, when it was announced that the one who should find the greatest number would select a subject for an address by the person who found the fewest. Miss Maude Knickerbocker received the first-named honor, and W. J. Yeoman responded with the address.

The Faculty have under consideration a course of lectures on farm matters to continue during the month of February, and so arranged that farmers from the neighborhood, as well as those from a distance, can attend and profit by the matters presented by various members of the Faculty. No charge is to be expected, and board can be had in the neighborhood at moderate rates. Applications and general correspondence in regard to such a course may be addressed at once to the President. An expression of interest from farmers in the immediate vicinity will be especially grateful, and may have decisive influence upon the contemplated course. Come and see us.

There are some three hundred and twenty graduates of the Kansas State Agricultural College; there are also four Regents of the College whose terms expire and whose successors will be for appointment by Governor Lewelling and confirmation by the new Senate. While it will not probably be wise to constitute the entire Board—possibly not even a majority—from the graduates or past students of the College, yet it is undeniable that the work of the institution and the details of its needs are better understood by those who have completed its course of study, than they can be learned by persons unacquainted with the work. The *Kansas Farmer* therefore heartily seconds the suggestion of the INDUSTRIALIST that the graduates "are well worthy of a representation upon the Board of Regents."—*Kansas Farmer*.

Upon the urgent request of Secretary Rusk by telegram, and with consent of the members of the Board of Regents, Prof. Georgeson has accepted on short notice a commission from the U. S. Department of Agriculture for a two-months' visit to Denmark, his native country. The special mission is a careful investigation into the famous dairy methods of the Danish people, with incidental effort for the introduction of American corn in its various forms for table use. A slight change in the arrangement of the studies in the course for Second-year students enables him to give the usual lectures in Agriculture in the Spring term instead of the winter, and the work of the Farm Department in experiment will go forward under the care of his efficient assistants. The College and the State may well feel gratified over this unsought appointment upon so important a mission in the interest of agriculture.

THE COLLEGE AT THE STATE TEACHERS' ASSOCIATION.

A goodly number of graduates and former students of this College appeared at the State Teachers' Association last week. The effort to gather for social converse Wednesday evening was not altogether a success from the fact that little time was free from important parts of the programme of the Association. The rooms of the Lieut. Governor, near the Senate Chamber, were made headquarters for the College, and the two hundred large photographic views in and about the College were the object of admiration by friends and visitors throughout the meetings. "I never saw so fine a lot of views," was the frequent remark of experienced critics, as well as of casual visitors, though little opportunity for display was given. No sufficient room for exhibition could be provided under the circumstances.

Prof. Olin presented an admirable paper upon "Individuality in School Matters," and was in attendance throughout the sessions. Pres. Fairchild and Prof. Walters were visible from time to time, but took no part in the programme. Of former teachers, Ex-President Denison and Professors Ward and Platt were attendants. Among graduates were seen G. E. Hopper, '85; M. A.

Carleton and W. J. McLaughlin, of '87; Bertha Bacheller, H. W. Jones, and O. L. Utter, of '88; W. H. Olin, '89; John Davis and C. J. Dobbs, of '90; S. N. Chaffee, P. S. Creager, Mayme Houghton, and Lillian A. St. John, of '91; R. S. Reed and R. L. Wallis, of '92. Former students dropped in from time to time to express their interest still in the College and to inspect its growth as shown in the pictures. Among these are remembered Hale Richie, 1872; G. E. Rose and Geo. Knipe, 1880; S. E. Acton and Mrs. Eva Brown-Acton, 1883; E. B. Bacheller, 1886; F. K. Reasoner, 1887; Sadie Cowgill, 1887; Frank Ditto, Alice Atwood, Bertha Spohr, and Hugh Mattoon.

GRADUATES AND STUDENTS.

Sam Kimble, '73, was elected President of the Convention of County Attorneys at Topeka last week.

E. A. Clark, Second-year in 1891-2, was married, on December 25th, to Mrs. Flora H. Bond, at Greenleaf, Kansas.

Joseph B. Thoburn, in Third-year classes last spring, enters College this term, and will graduate with the Class of '93.

J. W. VanDeventer, '86, sends a sample copy of *The Populist*, published every Friday at Sterling, Colorado, of which he is proprietor.

H. A. Darnell, '92, spent his week of recreation with Manhattan friends. He is teaching in Wabaunsee County, with St. Marys as his post-office address.

E. J. Thompson, First-year in 1891-2, writes from Haviland, Kansas, of his intention of returning to College as soon as convenient. He is teaching this winter.

P. S. Creager, '91, enters upon the new year as managing editor of the Topeka *Weekly Capital*, upon which he has been agricultural editor for the past six months or more.

G. E. Hopper, '85, M. Sc. in Physics and Engineering in 1890, has been appointed receiver for the Arkansas City waterworks. His experience and study in such matters promise success.

Cards received announce the marriage of M. O. Bacheller, Third-year in 1891-2, to Miss Deema Griffie, of Alden, Kansas, on Christmas eve. These young people will in the future make their home at Lyons, Kansas.

Mr. and Mrs. John H. Calvin, of Topeka, buried their three months' old infant Wednesday. Mr. Calvin is a member of the Class of '84 at the College, and his wife (Miss Henrietta Willard) graduated in '86.—*Manhattan Republic*.

THE WEATHER FOR DECEMBER.

BY PROF. E. R. NICHOLS.

Temperature.—The mean temperature for December, 1892, was 24.02° , which is 5.62° below normal. There have been only five colder Decembers in the past thirty-five years, the extremes being 20.29° , in 1876, and 41.68° , in 1877. The highest temperature was 67° , on the 5th; the lowest, -9° , on the 26th—a monthly range of 76° . The warmest day was the 5th, the mean being 51.75° ; the coldest, -2° , on the 26th. The greatest range for one day was 43° , on the 3rd; the least, 7° , on the 6th. The mean of the observations at 7 A. M. was 19.58° ; at 2 P. M., 31.26° ; and at 9 P. M., 22.61° . The mean of the maximum was 32.13° ; of the minimum, 13.39° , the mean of these two being 22.76° .

Barometer.—The mean barometer was 28.95 inches, which is 0.1 inch above the mean of twenty-one years. The maximum was 29.391 inches, at 9 P. M. on the 21st; the minimum, 28.449 inches, at 9 A. M. on the 7th—a monthly range of 0.942 inch.

Precipitation.—The total rain-fall and melted snow was 1.75 inches, which is .87 inch above normal. The total fall of snow was 13.75 inches, which is the greatest on our records. The mean snow-fall for December is 3.32 inches.

Cloudiness.—There were seven days entirely cloudy, three five-sixths cloudy, two two-thirds cloudy, four one-half cloudy, six one-third cloudy, one one-sixth cloudy, and eight clear. The per cent of cloudiness was 48, which is 5 above normal.

Wind.—The wind was from southwest sixteen times, north and northwest twelve times, west eleven times, east nine times, northeast seven times, south six times, southeast five times, and

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a calm fifteen times. The total run of wind for the month was 5426 miles, giving a mean daily velocity of 175.03 miles, and a mean hourly velocity of 7.29 miles. The maximum daily velocity was 449 miles, on the 7th; the minimum, 77 miles, on the 3rd. The maximum hourly velocity was 25 miles, from 11 A. M. to 1 P. M. on the 7th.

Below will be found a comparison with the preceding Decembers:—

December.	Number of Rains.	Rain in inches.	Prevailing Wind.	Per cent. Cloudiness.	Mean Temperature.	Minimum Temperature.	Maximum Barometer.	Mean Barometer.	Minimum Barometer.
1858	3	1.11	...	...	25.96	56	-16	...	...
1859	1	.20	38	NW	20.90	62	-8	...	...
1860	3	.50	30	NW	32.43	52	18	...	...
1861	3	1.00	28	S	32.19	65	0	...	...
1862	3	2.25	35	SW	39.50	65	14	...	...
1863	4	2.17	31	NW	27.93	59	-13	...	...
1864	4	1.11	31	NW	27.07	58	-6	...	...
1865	4	2.02	60	N	28.90	57	4	...	...
1866	2	.51	45	NW	35.44	62	15	...	...
1868	3	.81	53	SW	24.86	57	-16	...	...
1869	4	.16	43	NW	30.05	58	-3	28.83	29.20
1870	4	.45	46	SW	29.93	63	-11	...	28.45
1871	1	.35	39	SW	24.17	53	-6	...	...
1872	3	.95	47	S	21.02	60	-10	...	...
1873	4	1.67	60	SW	21.71	65	5	28.74	29.26
1874	3	.67	41	N	31.66	58	0	28.82	29.32
1875	2	.78	51	SW	38.22	72	4	28.70	29.11
1876	1	50	41	N	20.29	69	-11	28.97	29.50
1877	3	1.55	52	SW	41.68	67	13	28.81	29.20
1878	4	.91	50	N	21.35	57	-7	28.89	29.39
1879	2	.62	44	NW	24.75	56	-10	28.60	29.12
1880	1	.28	58	SW	24.49	65	-16	28.69	29.21
1881	3	.53	57	SW	38.48	65	16	28.73	29.04
1882	3	.44	58	NW	29.59	67	-7	28.72	29.49
1883	2	.27	51	SW	33.04	66	-2	28.70	29.14
1884	5	.33	48	NE	21.70	57	-7	28.58	28.95
1885	4	1.08	47	S	33.03	60	-4	29.10	29.41
1886	2	1.58	40	NE	24.34	62	-5	29.05	28.62
1887	3	.80	39	N	26.09	56	-9	29.07	29.88
1888	3	1.22	31	N	33.39	64	0	29.07	29.46
1889	1	.02	25	SW	41.50	75	0	28.90	29.40
1890	2	.18	28	SW	33.21	72	3	29.01	29.47
1891	5	1.09	25	SW	37.67	67	5	28.82	29.48
1892	7	1.75	48	SW	24.02	67	-9	28.95	29.39
Means...	3	.88	43	SW	29.64	62	-2	28.85	29.33
									28.45

WIND RECORD.

December.	Total Miles.	Mean Daily.	Maximum Daily.	Mean Hourly.	Maximum Hourly.
1889	8046	259.55	576	51	10.81
1890	6414	206.90	323	82	8.62
1891	10032	323.55	632	65	13.48
1892	5426	175.03	449	77	7.29
Means...	7480	241.26	495	69	10.05
					37

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Prof. H. G. Larimer, for many years Principal of the Topeka High School, has resigned and joined the legal profession.

Midland College at Atchison will soon have a gymnasium building. The plans are drawn and all but \$400 of the needed funds have been collected.

The Hutchinson School Visitor will be continued during the ensuing two years by the newly elected Superintendent of Reno County, Mr. C. P. Dawson.

The histories of education in Kansas requested of all counties, high schools, and colleges should be sent to the Committee on Educational Exhibit before February 1st.

Since coming to Kansas, President Taylor of the State Normal School has lectured in over eighty towns and cities in the State; in some of them two or three times.

The new members of the Board of Directors elected by the Teachers' Association are: W. M. Davidson, of Topeka; A. S. Allen, of Kansas City, Kansas; John McDonald, and State Superintendent H. N. Gaines.

The news comes from Topeka that ex-Governor Robinson will be appointed one of the Regents of the State University. His appointment would be warmly endorsed by the friends of the University of all political parties.

The University Glee, Mandolin, and Banjo Club gave an entertainment to the members of the State Teachers' Association. The entertainment was greatly enjoyed, especially the fascinating violin solos of Prof. K. Dome Von Gesa.

The State Teachers' Association, although a success in every particular, was not so well attended as last year. Bad weather, and the prospective Columbian Exposition at Chicago next year, should be charged with the non-attendance

of several hundred enthusiastic Kansas teachers. The library which was to be given to the teachers of the county traveling the greatest number of miles to attend the Association, as well as the State flag, went to Cloud County.

Miss Emilie Kuhlman, now completing her twelfth years' work at the State Normal School, has sent in her resignation to take effect at the close of the present school year. Thousands of teachers throughout the State will learn of this with regret.

FARM NOTES FROM VARIOUS SOURCES.

All business men take note of the constant change in the taste of their customers and in the demand for certain kinds of goods. Farmers should do the same.

Many farmers do not stop to consider the value of good associations, in the refinement of speech and manners, which are essential qualifications for admittance to good society.

One of the strongest elements of success in farming is faith in the soil. As a class, farmers seem to feel that money laid away in the soil is dead property.—James M. Connor.

There is no reason why the farmer should be uncouth in speech or manner. An untidy appearance anywhere adds nothing to the income or value of the farmer.—*Our Grange Homes*.

Many a farmer has the idea that good roads will benefit people that live in towns or cities much more than himself, while, in fact, good roads benefit the whole community, and the farmer can readily get his share.

To get milk—to get the most and the best milk—the bodily comfort of the cow must be considered and ministered to. The comfort, the ease, the perfect rest of the cow must be studied if she is expected to yield to the extent of her powers.

Culture and refinement are not inherited; neither are they in the exclusive possession of any favored class in society. They can be made to adorn the humblest home of the farmer as well as to grace the palatial mansion of the merchant prince.

Many farmers who complain of lack of time for ornamental gardening might accomplish a great deal if they improved early spring opportunities. This is especially true of those living on sandy or well-drained soil.—*L. B. Piece, in New York Tribune*.

If the farmers would study the markets and their requirements, concentrate their patronage upon one good commission house, and make it a rule to ship only desirable stuff in the very best order, they would save to themselves some profit that now goes to middlemen.—*Prairie Farmer*.

A USE FOUND FOR THE COLLEGE YELL.

Successful farmer (whose son has been to college): "What was all that howlin' you was doin' out in th' grove?"

"Cultured son: "I was merely showing Miss Brighteyes what a college yell is like."

"Well, I swan! Colleges is some good after all. I'm going to town to sell some truck tomorrow. You kin go along an' do the callin'."—*New York Weekly*.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The labor of the students in the industrial departments is principal by a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the larger part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repu- tation. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

VARNEY'S BOOKSTORE.—Popular Head-quarters for College Text-Books and Supplies. Second-Hand Books often as good as new. Call when down town. Always glad to see you.

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CLOTHING.

E. LLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler." Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

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THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, JANUARY 14, 1893.

NUMBER 20

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Applications for Farmers' Institute should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

A BREATHING WELL IN LOGAN COUNTY.

BY PROF. J. T. WILLARD.

FOR a number of years, Mr. R. L. Smith of Wynona has noticed that two wells there blow out air at times and draw it in at other times. He has also noticed a close connection between their action and the weather. One well he has noticed more especially, and became so satisfied that the movement of air was connected with the state of the atmosphere that he called it a natural barometer. He was very anxious that the well should be observed by some scientific man with the necessary instruments. An aneroid barometer was sent to him to make observations with, at the same time recording the state of the well. His observations indicated quite clearly that the movement of air in and out of the well was dependent on the pressure of the atmosphere. As the case seemed interesting, the writer visited the well, taking with him an excellent mercurial barometer and such other apparatus as seemed likely to be useful.

The well was found to be a bored one, cased with lumber. It was about eight inches in diameter. Water is reached in this region at about 130 feet, but this particular well has been drilled much deeper. This fact has no influence on the blowing of air, however, as other wells in the vicinity not over 135 feet deep show the same phenomenon. The well is abandoned now, on account of machinery having been lost in it, which interferes with its use.

On reaching the well, the writer first sealed the top, by means of mortar and plaster of Paris, airtight, inserting a one-fourth-inch brass tube to connect the well with a guage. The guage consisted of a simple U-tube of glass, bent so that the two limbs were side by side. The bend of the tube and for several inches up was filled with water, and a scale behind the glass tubes measured any difference in height between the two columns of water. On connecting this guage with the well, if air had been blowing out, its tension was measured by the height to which the water in the outer limb rose above that in the inner. If, on the contrary, air was being drawn into the well, on attaching the guage, the water would stand higher in the inner limb. The following abstract from the observations made during four days will serve to show the connection between the movement of air to and from the well, and the fluctuations of the barometer:

Date.	Time.	Barometer in millimeters.	Guage in millimeters.
Aug. 27	4.30 P. M.	674.15	29
	5.30	673.75	28
	6.30	673.65	23
	7.55	673.60	21
	9.00	673.70	16
28	6.15 A. M.	674.30	0
	7.45	974.35	1
	8.45	674.15	2
	9.35	674.45	0
	8.45 P. M.	678.50	-31*
29	7.25 A. M.	681.15	-33
	8.30	681.55	-31
	10.00	681.90	-30
	11.30	681.90	-24
	1.00 P. M.	681.65	-17
	3.40	681.40	-10

* The minus sign indicates a drawing-in of air, the water standing higher in the inner limb of the guage.

The observations made showed conclusively that, the air of the well being stationary, if the barometer fell, the air of the well at once exerted a pressure outward, as shown by the water guage. Should the barometer then remain stationary, the tension of the air of the well became gradually less until equilibrium was again established. As this well was closed by the guage, the evidence was conclusive that the tension was relieved by the escape of air from other openings, probably neighboring wells. Equilibrium being established, should the barometer rise, the guage showed that

the tension of the air of the well was less than that of the atmosphere, and this inequality was corrected by an inflow of air. If, after a fall of the barometer, a rise should ensue before equilibrium was established, the guage would still show a greater internal tension. The well was therefore less delicate than the barometer, because the interval of time required for the necessary movement of the air. After a sudden and considerable change of the barometer, a strong movement of air to or from the well would be caused, and this movement would continue for some hours, even though the barometer might be returning to its original height.

These wells doubtless tap a subterranean reservoir of air, probably filling the interstices of sand or gravel beds. When the pressure of the external air is diminished, some of this imprisoned air escapes, and the greater the fall of the barometer, the greater the force with which the air is expelled. My friend Mr. Smith utilized this air-current to blow a whistle which could be heard all over the town, warning the inhabitants of a possible storm. With a rising barometer, caused by an increase in the pressure of the air, air would be forced back into the subterranean reservoir. Mr. Smith tells me that when the air is going into the well, the water recedes a certain amount, and that when the air is blowing out, it can be heard bubbling through the water.

THE NEW COLUMBIAN STAMPS. I.

BY PROF. A. S. HITCHCOCK.

IT will not be inappropriate to speak of one of the ways in which our Government has commemorated the incoming Columbian year. The Postmaster-general's report for 1892, page 75, officially announces the intention of the Postoffice Department to issue a new series of stamps, in the following words: "Closely following the authorization of Congress to establish the Columbian Exposition in Chicago, the idea was conceived by the Department of issuing, concurrently with that event, a special series of stamps with illustrations to commemorate the discovery of America by Columbus, such stamps to be sold at all postoffices in the country without, however, discontinuing the issue and sale of the stamps in current use." The report also describes the stamps, and the advantages of a new issue. He refers to stamp collectors as follows: "In addition, the 'mania,' as it is called, for collecting postage stamps, as specimens, is universal throughout the world. It affects every class and every condition of people, and is not confined by age or sex. It is shared, perhaps, by millions of people, from the school boy and girl to the monarch and millionaire, and the value of stamps in private collections which will never be drawn upon to pay postage may safely be placed at many millions of dollars." And estimates that "The net profits to be derived from their issue, that is, the extra amount beyond the ordinary revenue that would have resulted from the sale and use only of ordinary stamps, may be fairly placed at \$2,500,000."

The Government has departed from its custom of representing on its postage stamps the busts of well known statesmen or generals. Instead, we find illustrations from the life of Columbus. These illustrations, involving numerous figures, required the use of a larger stamp. They are the same height as the ordinary stamp and nearly twice as wide. The ten values, from one cent to fifty cents, are all that I have seen, but there are five higher values issued, one dollar to five dollars.

The first of the series is entitled "Columbus in Sight of Land." It will be remembered that a reward had been promised by the Spanish sov-

ereigns to the person who should first see land. About ten o'clock on the night of October 11th, Columbus had observed a faint light in the distance, and about four hours after this land was sighted by a sailor on board the Pinta, but the reward was subsequently allowed to Columbus for having seen the light. The fleet hove to till morning when a landing was made. The scene on this stamp probably represents the deck of the vessel as the fleet was approaching the shore in early morning. Some one has criticised this picture because it might with equal propriety represent Columbus leaving Spain. The critic was probably not a botanist or he might have observed that the palm tree in the distance is a native of the Bahamas and not of Spain. Besides this central view, on the right is represented a native chief and on the left a woman and child under a banana tree. This banana tree brings up an interesting question. The banana and closely allied plantain have been supposed to be natives of the Old World; probably the Malay region. Although introduced after the discovery, into America, and now widely cultivated through all the tropical regions of the continent, they were quite certainly not here before the settlements by the Spaniards. Neither Columbus nor the other early Spanish voyagers say anything about these plants, although the great Admiral was a very close observer of the useful plants he found, and certainly would not have overlooked these. So the banana tree in the picture must not be supposed to be growing on the island, a distant view of which is seen in the central picture, but more probably on the island of Hispaniola some years later when a permanent settlement was formed and the fruit had been introduced from the Old World.

It must be remembered that the engravings on the stamps are reproductions, mostly from paintings, and hence any remarks on the subject matter should be applied to the originals.

(To be continued.)

HOPE.

BY ALICE RUPP.

WHEN Pandora's box was opened, all the vices flew out, but Hope remained inside. This is a round-about way of saying that hope is always at hand: a statement so true that I do not believe, were we to search the world over, we could find a human being, in no matter how desperate a strait (providing he had his senses) utterly without hope.

Now, there are two kinds of hope: an illusive hope—a jack 'o lantern sort which results from an excited imagination—and a substantial hope, born from experience, tears, and wrongs. "Patience worketh experience, and experience hope."

Hope is a purely human quality bequeathed to man at his creation. Animals possess it not. No bird or beast tries to improve his condition or make his tomorrow better than his today. His life exists only in and for the present. To man alone is granted this power which marks the condition of his individuality and social progress.

Chalmers says, "The grand essentials of happiness are something to do, something to love, and something to hope for." It is true hope often deceives us, but without it man could never have risen out of his savage state. Without hope, no culture, no civilization, no progress in wealth, art, science, and literature. The desire to forget the things which are past, and reach out to those in the future is the great secret of human progress. Fear of evil may keep men from taking a backward step, but only hope of something better can spur them on.

The drowning man who catches at a straw, the ship-wrecked sailor, the entombed miner, the starving population of a famine-stricken district, even the murderer on the gallows clings to hope when

every other human sentiment has fled. It is hope that keeps the gold-miner digging away in the hole which yields nothing but gravel and rock, and it is hope that sends the emigrant from home and country into an unknown land.

Columbus hoped against hope as day after day and week after week the Pinta led the little fleet westward across the trackless waters till land appeared.

Goodyear hoped when all his friends despaired, and Morse saw a bright future for the electric telegraph when a whole nation sneered at his efforts. Cyrus W. Field continued to hope through thirteen years of anxious watching and ceaseless toil in order to perfect a communication second only in importance to the discovery of America.

Hence we see that all great men—I say all, for a thousand cases could be cited—have lived by hope. "Not what they saw, but what they believed in, made their strength." Hope is the power which moves the world. An anxious, doubtful, timid man can accomplish little; for does not fear unnerve us in the same proportion that hope inspires us?

Our modern sciences are teeming with this spirit of hope. They are ever looking forward to some new discovery. They predict progress, and announce advance; their themes are continual development.

Hope is the chiefest and most common of possessions; for did not Thales, the philosopher say, "Even those who have nothing else have hope." So universal is it that it has even been styled "the poor man's bread," and Pope in his *Essay on Man*, inspires us with this thought,

"Hope springs eternal in the human breast,
Man never is—but always to be blest."

Hope is the fire of the soul, and if it be rooted in that faith which, Dr. Holland so beautifully tells us, draws the poison from every grief, takes the sting from every loss, and quenches the fire of every pain—if it be planted in faith such as this, I say, and nurtured in love, have we not a fitting emblem of the Christian Graces, who with "arm entwined and concurrent voices shed joy and peace over our human life."

NATIONAL FARMERS' CONGRESS.

At the National Farmers' Congress recently held at Lincoln, Nebraska, the following resolutions were adopted:

WHEREAS, Even the most subtle and able apologists for option dealing have not been able to show that dealing in futures does any good, but have had to confine themselves to the contention that it does no harm; and

WHEREAS, The option trader or dealer in futures certainly creates no values, hence must at best be a useless member of society, living off the productive industry of others; while many are, and not without reason, of the opinion that trading is hurtful to the industrial interests of the mass of producers and to the morals of the people; therefore,

Resolved, That the National Farmers' Congress is heartily and emphatically opposed to what is popularly known as option trading, or dealing in futures; and

Resolved, That the National Farmers' Congress respectfully but earnestly requests the Congress of the United States to enact a law that will effectively stop what is commonly called option trading, or dealing in futures.

WHEREAS, Good roads would save the farmers of this country annually a very large amount of money, enhancing the value of their lands; would permit the regular attendance of farmers' children at schools; would eliminate the monotony and unsocial features from farm life, and would make possible and probable that active participation of the farmer in public affairs which is to the best interests of all good people; therefore,

Resolved, That the National Farmers' Congress is heartily in favor of judicious road improvement, economically and honestly made; and

Resolved, That the National Farmers' Congress recommends to farmers everywhere that they take in the movement for better roads that position to which they are entitled by their numbers, and their

vast financial, social and political, interests directly affected by this movement.

WHEREAS, It is manifest that imperfections in the national statutes creating the inter-state commerce commission and its provisions defining the duties thereof are so incomplete and limited in their provisions as to render the commission ineffective in compassing the ends for which it was created; therefore,

Resolved, That this National Farmers' Congress instruct its National Board of Agriculture to confer with the Congress of the United States as to the necessity and manner of so amending the inter-state commerce law as to remove all obstacles to its full administration, and to enlarge the powers and jurisdiction of the commission so far as the equitable demands of transportation may from time to time require; and that this Farmer's Congress shall confer with the approaching session of the present United States Congress, and report its proceedings to the next annual meeting of this body.

WHEREAS, The Universities and experiments in the interest of agriculture conducted by the National Department of Agriculture have demonstrated their very great value to the country; and

WHEREAS, The efficiency of trained specialists is embraced by continuity of service; therefore,

Resolved, That the National Farmers' Congress in council assembled, respectfully urges the importance of maintaining the scientific work of this department on a purely non-partisan basis, to the end that the benefits which science may render to the agricultural interests of this country may be fully realized.

Resolved, That the National Farmers' Congress recommend the appointment of an Executive Board, which shall be known as the National Board of Agriculture.

Resolved, That the delegates from each State select and report to this congress the names of the gentlemen and alternates appointed to represent their respective States on the said National Board of Agriculture; that said Board so constituted shall meet before the close of this congress and determine by lot the term of one, two, and three years' service that each member will serve on said Board, and that a majority of the delegates present at any meeting shall constitute a quorum for the transaction of such business as may properly come before it.

Later this Board was organized, and the Chairman of the Board was empowered to fill vacancies in States not represented in this congress. Hon. W. Pope Yeaman, of Missouri, was elected President of the National Board of Agriculture, and W. S. Delano of Nebraska, secretary.

THE PROFIT IN ASHES.

Ashes used as a fertilizer are generally very profitable. They supply potash to stimulate the nerves of the growing plants, and are thus a true manure. In contact with clay soil, they liberate the phosphate of lime; with manure they hasten decomposition. It does not pay a farmer to produce less on his land than it is capable of producing. A large crop exhausts its fertility more than a small one, but the cost of harvesting the large one is very little more than it costs to harvest a small crop. Part of the profits from the larger crop can be used in restoring the fertility of the land. It is only when there is a profit from crops to restore fertility that failure in farming can be averted. To get immediate returns, potash is necessary in some form, and, if properly used, it will enable the farmer to have a succession of large crops, thereby leaving him profitable returns, a part of which can be used in restoring the soil. With small crops and no returns, the end is failure, and ashes help to supply a strong and quick growth.—*Western Farm and Stockman*.

TO MAKE THE FARM PAY.

An exchange says that farmers can make money by the purchase of only so much land as they can pay for.

By not attempting to cultivate too much land.

By use of the best machinery, and the thorough cultivation of all crops planted.

By keeping a systematic record of all receipts and expenditures.

By keeping posted on progressive agriculture and implements.

By careful attention to the business of farming, and refraining from outside ventures and speculation.

Of the science of farming, it is especially true that if it is worth doing at all, it is worth doing well.

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.

Winter Term—January 9th to March 31st.

Spring Term—April 3rd to June 14th.

June 14th, Commencement.

1893-94.

Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

President Fairchild attended a meeting of the State Board of Education at Topeka on Tuesday.

Professors Popenoe, Olin, and Hitchcock will take part in a Farmers' Institute at Stockton on January 19th and 20th.

Prof. Hitchcock has published a text-book for the Fourth-year Botany Class, entitled "The Woody Plants of Manhattan in their Winter Condition."

Prof. Walters' paper on landscape gardening for the farmer, entitled "Old Homes Made New," finds a place in this week's *Kansas Capital and Farm Journal*.

The College Hill Alliance, at its meeting last evening, adopted resolutions approving the short course in agriculture planned by the College, and advising all farmers to attend.

A Farmers' Institute will be held at Hackney, Cowley County, January 19th and 20th, and at Garden City February 3rd and 4th. The dates for the Cherryvale Institute are not yet fixed.

Dr. Mayo attended a Farmers' Institute at Oneida the first of the week, and then reached Topeka in time for the sessions of the Kansas Stockbreeders' Association.

The fall term classes in surveying are now busily engaged in drawing maps of the College buildings and grounds. A goodly number took advantage of the holidays in this work and are nearly through.

The Third-year Class elected officers for the winter term as follows: President, E. A. Donaven; Vice-President, I. Jones; Secretary, Elsie Crump; Treasurer, E. L. Frowe; Marshal, J. A. Scheel.

"The Kansas Farmers' College: Its Condition and Needs" is the title of an address President Fairchild delivered last evening, before the State Board of Agriculture. Prof. Hood assisted with the magic lantern.

Prof. Magruder, Agriculturist, and Prof. Holter, Chemist, of the Oklahoma Agricultural College were visitors yesterday on their return from the meeting of the Kansas State Board of Agriculture at Topeka.

Prof. Mason was re-elected President of the Manhattan Horticultural Society at the regular meeting last week. The other officers are T. C. Wells and J. S. Hougham, Vice-presidents; W. J. Giffing, Secretary; S. D. Moses, Treasurer.

The Alpha Beta Society elected the following officers yesterday: President, C. H. Thompson; Vice-President, Fred Hulse; Recording Secretary, Onie Hulett; Corresponding Secretary, Jennie Smith; Treasurer, A. E. Ridenour; Marshal, W. S. Trader; Critic, Ivy Harner.

The Ionian Society elected the following officers yesterday: President, Nora Newell; Vice-President, Kate Pierce; Recording Secretary, Margaretha Horn; Corresponding Secretary, Flora Day; Treasurer, Ida Pape; Marshal, Laura Day; Critic, Maude Knickerbocker; Board of Directors, Olive Wilson, Mary Lyman, Margaretha Horn.

In its report of the Johnson County Farmers' Institute at Edgerton, last week, the *Kansas Capital and Farm Journal* says: "It is a pleasure to also refer to able services rendered by Mr. Hulett as secretary. He is one of the former students of the State Agricultural College, and in his treatment of the dairy question from a scientific standpoint, and the use and construction of

the centrifugal separator, he demonstrated that such a course of instruction had been put to good use. It may also be worthy of notice that notwithstanding the fact that perhaps this Institute is as well supplied with local talent as any other in the State, and that the members are as well versed in the routine work incidental to the successful management of a Farmers' Institute, still the management has thought it advisable to secure a number of the Faculty of the State Agricultural College each year. This year Prof. N. S. Kedzie was in attendance."

The only paper read before the Scientific Club at the meeting last evening was one by Prof. Hitchcock, entitled "The Present Status of Botanical Nomenclature." The following officers were elected for the year: President, J. T. Willard; Vice-President, A. S. Hitchcock; Secretary, Marie B. Senn; Treasurer, F. A. Marlatt; Program Committee, J. T. Willard, A. S. Hitchcock, E. R. Nichols.

The Mechanical Department has just completed three tables for use in the Botanical Laboratory which are of a most convenient plan. They are triangular in form, with the bases resting in front of windows, and extending about ten feet into the room. This arrangement allows ample light for a greater number of students at a time than any other. They are in daily use by the students in microscopic botany.

Superintendent Thompson occupied the public hour on Friday afternoon with an entertaining description of points of interest in and about Chicago. The parks, famous buildings, colleges, schools, and churches were briefly mentioned, and some idea given to the intending visitor of the many things worth seeing which may be found in the city and suburbs, and which are outside of the Columbian Exposition grounds.

The Horticultural Department recently received a large shipment of young trees and shrubs for spring planting in the nursery rows. In a list of thirty-nine additions to the stock, the following are new to our collection: Cercidiphyllum japonicum, Cornus florida, Sassafras officinalis, Quercus robur, Berberis Thunbergii, Hamamelis virginica, Viburnum acerifolium, Viburnum pli- catum, Pyrus toringo, Mahonia aquifolium, Syringa Emodi, Josikaea, Emodi, Persica alba, Pyrus Japonica rosea, Pyrus Japonica alba, Althaea trutez variegata, Desmodium penduliflorum, Vitex agnus-castus.

Just as the men were preparing to leave the carpenter shop on Wednesday evening smoke was seen rising in the air. Search showed it to come from beneath the floor, and upon taking up a few boards near the engine room door a mass of glowing coals almost as large as a hat was seen in the shavings and sawdust there accumulated. The fire was caused by linseed oil which, leaking from a barrel, ran through the floor and ignited spontaneously, assisted perhaps by the proximity of a steam pipe. To guard against such accidents in the future, the floor of the shop is being torn up in many places and the sawdust and shavings which have been accumulating for years removed.

LABOR AND EARNINGS.

Every encouragement is given to habits of daily manual labor during the College course. Only one hour of daily practice in the industrial departments is required; but students are encouraged to make use of other opportunities for adding to their abilities and means.

All labor at the College is under the direction of the Superintendents of the departments, and offers opportunity for increasing skill and efficiency. In regular weekly statements, the students are required to observe business forms and principles, showing from their daily account when and where the work was performed.

The shops and offices are opened afternoons and Saturdays for the accommodation of skilled students in work for their own advantage. Everywhere the student who works wins respect; and it is a matter of pride to earn one's way as far as possible.

The labor of the students in the industrial departments is principally a part of their education, and is not paid for unless the student is employed—outside of required hours of labor—upon work for the profit of the College. Students are so employed upon the farm, in the gardens or the shops, and about the buildings. The labor is paid for at rates varying with services rendered, from eight to ten cents an hour. The Superintendents strive to adjust their work to the necessities of students, and give them the preference in all tasks suitable for their employment. So far as practicable, the work of the shops and offices is turned to account for their benefit; and the increasing extent of the grounds and sample gardens brings more of such labor. The monthly pay-roll for the past year ranges from \$250 to \$400.

Many students obtain work in the city or upon neighboring farms, and so pay part of their expenses. In these ways a few students are able to earn their way through College. The amount so earned will vary according to the tact and zeal of the student. The majority must expect to provide by earnings outside of term time, or from other sources, for the large part of their expenses. The long summer vacation of three months offers opportunity for farm or other remunerative labor; and no one need despair of gaining an education if he has the ability to use his chances well.

THE SHORT COURSE IN AGRICULTURE.

Those interested are reminded that the two weeks' course of lectures on agricultural topics will begin on Wednesday, February 15th. It will consist of thirty lectures on agriculture, horticulture, and the application of science to these. Three lectures of one hour each will be given daily.

For information, address President Fairchild.

GRADUATES AND STUDENTS.

D. T. Davies enters Third-year classes, after a year's absence.

J. H. Baily, student in 1890-1, has re-entered College this term.

E. O. Sisson, '86, is pursuing a course of study at Chicago University.

G. W. Fryhofer, Second-year last year, is visiting friends in the city today.

U. S. King, First-year in 1890-1, has returned and entered classes this term.

Lou Hessian, Second-year in 1889-90, is attending college at Godfrey, Illinois.

Phoebe Turner, Third-year in 1891-2, has been appointed to a clerkship in the Senate.

Dora Thompson, Third-year, is unable to continue in College on account of ill health.

W. H. Steuart, Third-year, drops out for this term, but expects to re-enter next spring and graduate with his class.

W. E. Whaley, '86, will remain at home in Manhattan for a few months and pursue studies in Agricultural Science.

A. Jackson, Second-year in 1891-2, was visiting with College friends this week. He is on the home farm near Lincoln.

May Harmon, Third-year in 1889-90, has entered College again with the intention of graduating with the present Fourth-year Class.

E. B. Senn, Third-year in 1887-8, was married December 28th, to Miss Nellie Coultermarsh, of Bala. Mr. and Mrs. Senn will live at Lasita.

Ivy and Myrtle Harner, Fourth-year and Second-year respectively, were called home very suddenly yesterday because of the severe illness of a younger sister.

Robert Brock [91] and Lyman Harsford [student in 1884-5], both young men of ability, were admitted to the bar by Judge Spilman this week.—*Manhattan Mercury*.

The visit, during the holidays, of J. S. Gould, Third-year in 1887-8, escaped the paragrapher. Mr. Gould will complete a theological course at Chicago in another year.

Ava Hamill, '92, was married to H. C. Tillotson, Second-year in 1887-8, on January 4th, at the home of the bride's parents in Olathe. Mr. and Mrs. Tillotson are at home in Salina.

Delpha Hoop and Nellie McDonald, '91, Mima Carey, Second-year in 1888-9, and Rev. Dan B. Brummitt, student in 1879, are on the programme of the Riley County Educational Association meeting at Keats, next Saturday.

GENERAL DUTIES AND PRIVILEGES.

General good conduct, such as becomes men and women anywhere, is expected of all. Every student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Saturdays, and no student may be absent without excuse. Students enrolled in any term cannot honorably leave the College before the close of the term, unless excused beforehand by the Faculty. A full and permanent record of attendance, scholarship, and deportment shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning, and unnecessary absence from them is noted in the grades.

Every Friday, at 1:30 P. M., the whole body of students gather for a lecture from some member of the Faculty, or for the rhetorical exercises of the third- and fourth-year classes. Once a week all the classes meet, in their class-rooms, for exercise in elocution and correct expression.

There are four prosperous literary societies, two of them of many years' standing. All meet weekly, in rooms set apart for their use. The *Alpha Beta*, open to both sexes, and the *Ionian*, for ladies, meet Friday afternoon. The *Webster* and the *Hamilton* admit to membership gentlemen only, and meet on Saturday evening.

The Scientific Club, composed of members of the Faculty and students, meets in the Chemical Laboratory on the last Friday evening of each month.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

Pres. Peter McVicar, of Washburn College, has attended every one of the twenty annual meetings of the State Teachers' Association.

Ed. T. Barber, the past four years County Superintendent of Allen County, has purchased a paper out there and will become its editor.

The members of the State Teachers' Association presented the outgoing Superintendent of Public Instruction, G. W. Winans, with a solid gold chain.

Prof. Blake, of the State University, has been to Washington, D. C., to look after the success of that great and only fog-horn which he will, in the near future, have completed.

The officers elected for the ensuing year by the State Teachers' Association are: President, G. W. Winans; Vice-President, J. W. Cooper; Secretary, Lizzie Barnhart; Treasurer, Isaac Morgan.

Superintendent Jordan, of Shawnee County, has been tendered the position of special agent for the Central School Supply company of Chicago, with headquarters at Topeka. He will probably accept the offer.

The collection of North American animals now being put in place in the Kansas building of the Columbian Exposition by Prof. Dyche, of the State University is already producing a sensation in Chicago. The *Inter-Ocean* describes it in a two and a half column illustrated article.

In accordance with the regulations providing for the payment of railway fare in excess of \$3 to Kansas students to the State Normal School, over 200 received mileage last year. As there were 48 from outside the State, the total number of students from beyond a radius of 100 miles was about 250—a fact worth noting.

Prof. J. N. Wilkinson, now completing his ninth year as Director in Training in the State Normal School, and ex-President of the State Teachers' Association, has sent in his resignation to the State Normal School, and is planning to spend the next two years in Europe in special study. It will be a difficult matter for the State Normal School to find a man who can fill the vacant chair.

A painting of the oldest country schoolhouse in the State was on exhibition at the Association. It represented a log structure, appearing to be about twenty by thirty feet in size, situated near where Fort Leavenworth now stands. The school was taught by V. K. Stanley in the spring of 1856. There was a building in Wyandotte county in 1847, but it was for Indian children; but this is the first building for white children in the State. Mr. Stanley is now a member of the school board and a real estate dealer at Wichita. The picture was painted by his wife.

FARM NOTES FROM VARIOUS SOURCES.

Plant good seed in fertile, well prepared soil, at the right time, and give the crop thorough tillage.

It is better to preserve the fertility of the soil than to have to build it up after being "run down."

Don't wear the ground out by raising the same kind of crop on it year after year. Adopt a system of rotation, and the soil can be made better every year.

Good seed is the first thing to consider in crop planting. What does rich soil, good cultivation, and favorable season amount to if the seeds planted will not germinate, or have not enough vigor to produce good crops? Don't make a mistake in selecting seed.

We cannot expect the rough and tumble treatment practiced upon farm animals by the serf peasantry of three or four hundred years ago to bring paying and in every way satisfactory results, on the refined and, so to speak, highly artificial animal of our time.—*Maine Farmer*.

A peculiar fact has been brought to light on the farm of Vice-President Morton in reference to churning sweet cream. The cream on this farm is churned while sweet, and the butter-maker has discovered by actual test that the best temperature for churning sweet cream is from 36 to 39 degrees. At this temperature the churning takes

only from twenty to thirty minutes, and only one-twentieth of one per cent of the fat is left in the butter-milk, while at the usual churning temperature of 62 degrees, about two per cent of the fat was lost in the butter-milk. It is very possible that the character of the cows and the method of feeding may have something to do with this novel result.—*Rural Northwest*.

A Kansas City man writes to *Colman's Rural World*: "All grades of butter below fancy are immovable. Oleomargarine has captured about eighty-five per cent of our trade, and it will eventually, I believe, drive out every creamery in Missouri, Kansas, and Nebraska. This is a serious affair for the farming industry."

Do you know that your success or failure next year depends scarcely more on the favorable or unfavorable conditions of the season, than it does on your this winter's reading and studying and planning? Put in the old haphazard fashion, your crops are likely to be good or bad according as the weather is propitious or the reverse, and your profits will be proportion; but with a definite system, which does not risk all on one crop, nor restrict the disposition of any crop to a single channel, with the best seed and most approved methods of cultivation, all of which matters you may, if you will, come to understand during the winter months, you can make a profit on your farm next year whatever the season. There has not been a year in Kansas since the grasshopper scourge, when a well-improved, properly cultivated farm might not have been made to yield its proprietor a profit.—*Kansas Weekly Capital*.

HONOR TO WHOM HONOR IS DUE.

There are some very dull or very obstinate scholars in this world. The editor of the *Breeders' Gazette* recently heard a western swine breeder denounce the college professors for preaching against corn as hog feed. He knew they were wrong, and he wanted none of their theories and balanced rations. He had fed corn freely to his swine, and they were as good as anybody's hogs. On being asked how he fed his corn, he said that he scattered it in his clover lot. And then the listeners turned the laugh on him, for he was feeding just the ration the professors had recommended—corn and clover.

This reminds me of the remark a farmer made soon after Mr. Stockbridge began to teach the use of chemical fertilizers, especially that it was seldom necessary to furnish the plant with any of the dozen or more elements of plant food except nitrogen, phosphoric acid, and potash, the others being obtained in sufficient quantity from the air or soil. With other farmers, he had been buying Stockbridge or other prepared fertilizers for a year or two with more or less satisfaction, but he had no notion of giving the "professors" credit for teaching him any thing about farming. Asking him one day what he thought of commercial fertilizers for growing farm crops, he said it was all nonsense. He had tried them a little, but he had got through buying them. "No more commercial fertilizer for me. All I want is nitrogen, phosphoric acid, and potash."

It is terribly hard for some persons to admit that they did not know it all before. But these men, I believe, do not represent farmers as a class; certainly not the class that it has been my lot to meet and mingle with. A great many farmers are having their names put on the mailing lists of the experiment stations for receiving all the bulletins the professors send out; and the papers are read and studied, and the knowledge they contain becomes a part of the make-up of the readers. Possibly some of them forget to give credit for what they have learned through these channels; but I think most readers are ready to render unto the professors the things that belong to the professors. Every agricultural lecturer or writer knows that he has a far more critical audience now than formerly. The farmers can talk fertilizers and balanced rations now with understanding. The scoff at science is the exception now, not the rule.—*A. W. Cheever, in Our Grange Homes*.

KEEP BEEF AND MILK SEPARATE.

If you are going to keep a dairy, keep dairy cows. Do not attempt to mix beef and milk together in the same animal. The general-purpose cow is a myth. Good milk is required for good dairy productions, and to get it one must first have good cows, then properly feed them. There are too many poor cows in our dairies, those who are running their owners into debt every day. In a

dairy in Herkimer County, N. Y., where the cows are tested, the range was from \$19 to \$48. The keeping of these \$19 cows is what is causing this complaint, "Dairying don't pay." It costs just as much to keep them as it does the \$48 cows, and as in that county, or any other in this State, a dairy cow cannot be kept for less than \$30, you will see that while one is running her owner in debt to the amount of \$11 each year, the other is giving him a profit of \$18; quite a difference.

Remedy: Buy a scale, tack a piece of paper on a board, and hang it in the stable; then weigh each cow's milk and test it with the Babcock machine for per cent of butter fats. Thus you will be able to select and weed out all the cows that are running you in debt for their board and asking you to care for them besides. When you have done this make the stables warm, light, and well-ventilated, then feed those you have retained with liberal, well-balanced rations. Save the manure and apply it to the land at once.—*George A. Smith, N. Y. State Cheese Instructor*.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. E. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

VARNEY'S BOOKSTORE.—Popular Headquarters for College Text-Books and Supplies. Second-Hand Books often as good as new. Call when down town, Always glad to see you.

DRY GOODS.

E. A. WHARTON'S is the most popular Dry Goods Store in Manhattan. The greatest stock, the very latest style, the most popular prices. Always pleased to show goods.

CLOTHING.

ELLIOT & GARRETSON, Clothiers and Furnishers, invite students and all other College people to call and examine their large stock of new goods. All the desirable things in men's wear. Latest styles in every department.

WATCHES, JEWELRY.

J. Q. A. SHELDON, "the Jeweler." Established in 1867. Watches, Clocks, and Jewelry repaired. Eames Block.

R. E. LOFINCK keeps a big stock of Watches, Clocks, Jewelry, and Gold Spectacles, also Musical Instruments. '75.

E. K. SHAW, Jeweler and Optician. Watches, Jewelry, Silver-ware, Spectacles, Clocks, Fountain Pens, Gold, Pens, etc. Repairing of Watches, Clocks, Spectacles, and Jewelry done promptly and skillfully. A written guarantee given with all warranted watch work. 308 Poyntz Ave.

DRUGS.

W. C. JOHNSTON, Druggist. A large line of Toilet Articles and Fancy Goods. The patronage of students is solicited.

HARDWARE.

A. J. WHITFORD sells Stoves and Hardware at very low prices, and carries a large stock from which selections may be made. Student patronage respectfully invited.

DENTIST.

D. R. G. A. CRISE, Dentist, 321 Poyntz Ave. The preservation of the natural Teeth a Specialty.

PHOTOGRAPHS.

DEWY, the photographer, will henceforth make photographs for students at special rates, which may be learned by calling at the gallery on Poyntz Avenue.

BOOTS AND SHOES.

RELIABLE Boots, Shoes, and Rubbers, direct from the leading Eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

LESLIE H. SMITH.

LIVERY.

PICKETT'S NEW LIVERY STABLE.—Everything new and strictly first-class, special attention will be given to student trade. Prices that will suit you. Stable three doors east of Commercial Hotel.

MEAT MARKET.

SHULTZ BROS. offer Fresh and salt Meats in great variety. Students are invited to call at their market on Poyntz Avenue, one door east of Fox's bookstore, or give orders to delivery wagon.

SHAVING PARLOR.

BATHS, \$1.00 cash. 12 shaves, \$1.00, cash. Hair cutting a specialty. All work first-class at Pete Hostrup's Barber Shop, South Second Street.

GENERAL MERCHANDISE.

THE SPOT CASH STORE is Headquarters for Dry Goods, Novelties, Boots and Shoes, Hats and Caps, Clothing, and Ladies' Wraps. Lowest prices in the city.

E. B. PURCELL, corner of Poyntz Avenue and Second Street, has the largest stock in Manhattan, of everything wanted by students, consisting in part of House-keeping Goods, School Books, Stationery, Boots and Shoes, Clothing, Hats and Caps, Dry Goods, Groceries, etc., etc. Goods delivered in all parts of the city and at the College, free of charge.

very narrow." He "found a piece of land like an island, although it was not one, with six houses on it, which in two days could easily be cut off and converted into an island." "This island is very large and very level, and has very green trees, and an abundance of water, and a very large lagoon in the middle, without any mountain."

The other set of facts is the record of the distances sailed, bearings of the courses and description of the islands which would not be intelligible without a chart. One passage, however, is of particular importance: "I determined to wait until to-morrow evening and then to sail for the southwest. I returned to the ship, and set sail, and saw so many islands that I could not decide to which one I should go first. * * I looked for the largest one and determined to make for it, and I am so doing, and it is probably distant five leagues from this of San Salvador."

It is interesting to know that all the writers on the subject have based their diverse conclusions on the same document. The first two, Turk's Island and Mariguana, can probably be left out of the question because there is no land five leagues to the southwest.

I have had the pleasure and privilege of visiting Watling's and Cat Islands. The latter, though considered by the inhabitants of the Bahamas to be the San Salvador, does not answer well to the description. There is no lagoon in the middle, and the interior is comparatively high, there being hills within sight of Columbus Point 400 feet in height. There is no reef surrounding the island. One could not sail along its coast in a north-northeast direction anywhere on the south or east side of the island, nor is there a harbor of the description given.

Watling's Island answers much better so far as the description of the island is concerned. There is a large lagoon in the middle, the land is low, and there is an outlying reef. But according to the charts Samana will also answer to the description, except there is no lagoon in the center. However, as Columbus arrived at the Bahamas during the wet season, Captain Fox has shown that there was probably at that time considerable surface water over the low-lying central portion. To decide between these two it is necessary to identify the islands subsequently visited.

After a careful survey of the evidence brought forward for the various supposed courses, and a comparison of this with the log-book of Columbus, an examination of the charts of the region issued by the United States Hydrographer, and from some personal experience among the islands in question, it would seem that Samana is almost certainly the San Salvador of Columbus.

(To be continued.)

THE KITCHEN GARDEN.

BY BERTHA KIMBALL, '90.

NO farm is complete without a garden, and the farmer who decides to depend on the market for his vegetables generally goes without them. The first radishes and lettuce, the early peas and beans, appreciated because they are the first, become luxuries when procured from the market.

The temptation to wait until the price is lower prevents buying the earliest, and carelessness and false economy often unite to make the bill of fare unpleasantly plain during both summer and winter.

It is not because of the cost of seed and planting nor of the time it necessarily takes to care for a garden that we find it so often either entirely a minus quantity or at best sadly neglected, but rather it is a careless feeling that we can get along without it, and buy what we need.

Probably the farmer is not the only person who dislikes to be interrupted in a certain work before it is finished; but it is by no means an easy matter to persuade him to leave his corn planting for

a few hours, long enough to plow the garden. This done, many farmers' wives manage the rest. The garden is not such an impossibility as it seems, and the table is furnished with salads and early vegetables at little expense. Beets, carrots, turnips, onions, tomatoes, cabbage, potatoes—in short, all the common vegetables—can be so easily grown that no one should be without them.

Even celery may be grown, if care is taken, but in this locality constant irrigation is necessary, and like most of the other vegetables, it must be carefully watched and protected from insects.

No excuse can be given for the absence of fruit. Berries may be had with a little care, and no farm is complete which does not produce strawberries, raspberries, and blackberries as regularly as it does corn, wheat, and oats.

The cost of growing is more than compensated by the freshness of the vegetables, fruit, and berries, and the garden, while furnishing the table with its products, is often made a source of profit in a financial way, as well.

Children are always interested in gardening; and what more healthful or less harmful amusement can be given them?

Boys would perhaps grow up with more of a taste for farming if they were given a part of the garden to do with as they pleased, raising what they wish, and selling the products as their own.

The wife usually finds enough housework to fully occupy her time; but a reasonable time spent in the garden, morning and evening, at work with light garden tools, would injure no one, and need not cause serious neglect of other duties. Women's sphere is very probably in the home, but if her scepter waved over more gardens, the result would be not only better furnished tables, but there would be fewer farmers' wives with broken health and worn-out nerves.

THE SCIENTIFIC CLUB.

The Scientific Club was called to order by Pres. Willard. M. A. Carleton was appointed secretary pro tem.

The Committee on Constitution reported, and the new Constitution was adopted.

The principal paper of the evening was presented by Prof. Mason. His subject was "Notes on Kansas Forestry." He finds as a result of his numerous investigations and collections that one hundred and five trees and shrubs are native in Kansas, occurring chiefly in the eastern part, of course, but having more western representatives than one would at first suppose. Taking Gray's manual as a basis of calculation, the species that have a general range within the limits covered by this book are represented by sixty-six of their number in Kansas; of those having an easterly and southerly range, twenty occur in Kansas; eight others native in the State, are southern forms; eight more range southerly and easterly, and nine are northern and western. Special mention was made of several species on account of their rarity or peculiarities of distribution. The American mistletoe is now known to occur in Kansas, having been collected in Montgomery County by Prof. Mason. The eastern Buckeye (*Aesculus glabra*) is noted in eastern Kansas, while the southern form (*Aesculus arguta*) occurs farther westward. The red-fruited buck-berry (*Symporicarpus vulgaris*) so common about Manhattan and eastward, is almost wholly replaced by the white-berried form (*S. occidentalis*) in extreme western Kansas. Several marked examples of plants occurring out of their range were noted, in the cases of Soap-wood (*Sapindus acuminatus*) a common southwestern species, but now found by Mr. S. Norton at Manhattan; a species of rose (*Rosa setigera*) found also at Manhattan, and the Buffalo-berry (*Sheperdia argentea*) found at Garden City by M. A. Carleton. Further needful work on the part of botan-

ists was suggested, in the way of clearing up some uncertainties concerning Kansas species of buckeye and plum. A viburnum (*Viburnum Lentago L.*) new to Kansas was mentioned as occurring in northeastern Kansas under head of voluntary notes.

Prof. Hitchcock introduced the topic of recent researches in chemistry of plant assimilation, and was followed by Prof. Willard with additional notes in the same line. The particular point of discussion was concerning the formation of carbohydrates in plants the medium of formic aldehyde from carbonic acid and water, hitherto unproved, though suggested by a German Chemist, Baeyer. The antiseptic properties of this aldehyde were also discussed.

Prof. Hood mentioned the recent death of Werner Siemens, one of the three Siemens brothers who have done so much in various lines of science, particularly electricity. The "Siemens armature" is one of their inventions.

Adjournment.

MARIE B. SENN, Secretary.

KEEP ACCOUNTS THIS YEAR.

A much larger number of farmers keep a close account of their receipts and expenditures than is generally supposed. The writer knows some farmers who keep as accurate books as merchants or other business men, but these are exceptions and not the rule. The greater number of farmers, and other classes whose business does not actually require book-keeping, do not appreciate the pleasure as well as the profit derived from being able at any time to see what money has been taken in by sales, and otherwise, and the amount that has been paid out for different things.

On the farm where different kinds of stock and poultry are kept, and where all through the year some product of the farm—corn, wheat, potatoes, fruits, berries, poultry, butter, eggs, etc.—are being marketed, and when farm implements, breeding stock, seed, hired help, groceries, clothing, etc., are being purchased, some way of keeping accounts is necessary if a man is making a business of farming as he should. A book for the purpose can be purchased for a small amount at any stationery store, and any of your merchants will aid you, if you need it, in getting a start at correct forms, although by getting a book made for that purpose any person of common sense need not have any trouble in keeping accounts straight.

It is a good plan to keep a separate account with the different departments of the farm. Have an account for poultry, dairy, grocery, hog, cattle, horse, corn, wheat, potatoes, fruit, berries, etc. Charge each department with its part of expenses, and credit each with its receipts. The difference between receipts and expenses—taking into consideration the money invested in each—will show the profits. Charge each department with a reasonable amount for your own and team's labor, wear and tear of machinery, and it will be an easy matter to see whether you are progressing or retrograding financially. By this means it can be ascertained what department of farm work pays best. If any does not pay it can be dropped, and more attention can be paid to those things which you know do pay.

A farmer should be able, the same as other business men, to show any day in the year just how he stands financially. We hope that many of our readers who have so far neglected this important matter will "turn over a new leaf" and emulate the merchants and the bankers in this feature of business so necessary to the success in any avocation.—*Journal of Agriculture*.

Recently effects of tobacco on college students has been made a special study, and according to the published reports, "the records of Yale College during the past eighty years show that the non-smokers are 20 per cent taller than the smokers, 25 per cent heavier, and had 66 per cent more lung capacity. In the last graduating class at Amherst college, the non-smokers have gained in weight 24 per cent over the smokers; in height, 37 per cent; in chest girth, 42 per cent, and in lung capacity, eight and thirty-six hundredths cubic inches."

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.
 Winter Term—January 9th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Com menceme .
 1893-94.
 Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold at par or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

The Farm Department has purchased fourteen stock hogs.

Capt. Smith and wife were visitors at the College yesterday.

The Cooking Class served dinner Wednesday evening to the Regents and Faculty.

The annual exhibition of the Hamilton Society will be held Saturday evening, February 4th.

Friday's chapel exercises were very happily prefaced by a duet by Misses Lyman and Dewey.

Mr. A. A. Cottrell, of Wabaunsee, visited his daughters this week and spent Thursday at the College.

The first Friday lunch of the year was served yesterday to almost a hundred students at the usual price, ten cents.

The Domestic Department is the richer for a new IXL range, which promises in a brief trial to be quite satisfactory.

Professors Failyer, Popenoe, Olin, Hood, and Hitchcock are in attendance upon Farmers' Institutes at Stockton and Constant this week.

On Thursday the class in Veterinary Science received practical instruction at the barn, where Dr. Mayo has a few steers under treatment.

Col. S. A. Sawyer, he of auctioneering fame, has donated to the Library several volumes of the *Breeders' Gazette*, thereby completing our set.

Prof. Walters is on the lecture programme of the Y. P. S. C. E. of the Manhattan Christian Church. His topic, as published, is "The Optimist and the Pessimist."

Over a hundred young men met Instructor Freeman, Wednesday morning, in the interest of organizing a class in athletics. Much interest was shown, and indications point toward a large class.

Five barrels of sorghum, being the first of a large order, was received from the Medicine Lodge Mills the first of the week. It is being fed, mixed with corn-meal, to the "experimental" steers, and, judging from the avidity with which they devour it, is a ration well suited to the taste of the animals.

Beginning Monday next, the Cooking Department will serve the usual weekly dinner to the Faculty, who are assured that, while improvement is the order of the day in the Kitchen Laboratory as elsewhere, there will be no corresponding increase in price. The dinners served by the Cooking Class have always been good, and worth every cent charged for them.

The Fourth Division of the Fourth-year Class occupied the public hour yesterday afternoon in the following programme of orations: "What Shall We Do With the Drunkard?" C. J. Peterson; "Sunday Opening of the World's Fair," C. F. Pfuetze; "A Modern Reformer," Edith R. McDowell; "The Proposed Division of Kansas," J. D. Riddell; "An Important Question," J. A. Rokes; "Modern Conquerors," Eusebia D. Mudge; "Emancipation and its Effects upon the Nation," F. R. Smith; "A Life of Failure," G. W. Smith.

The Kansas Agricultural College has received a high compliment from the United States Department of Agriculture in the appointment of Prof. Georges to a special mission to Denmark; to investigate and report on the Danish dairy industry. That Uncle Jerry, and through him the country at large, will receive from Prof. Georges a valuable report will be readily believed by all who have read his able contributions to the *Kansas Farmer*, and the synopsis of his reports of farm experiments which have appeared from time to time in

these columns. It is to Prof. Georges' credit that he was not seeking the appointment, and, indeed, knew nothing about it until a few days ago he received a telegram from Secretary Rusk asking him to undertake the mission.—*Kansas Farmer*.

The Second-years of the Hamilton Society are in the majority. And thereby hangs a tale. A day or two before the term election the Second-year members called a meeting and made up a slate, naming all the officers except three. With a magnanimity rarely known in this age of political avarice, the Second-years left the choice of President, Vice-President, and Critic to the members from the Fourth-year, Third-year, and First-year classes. This voluntary surrender of three out of thirteen offices has placed the minority under obligations to "their friends, the enemy."

THE BOARD MEETING.

All the Regents were present at the regular meeting of the Board, January 17th and 18th. The usual routine of business in auditing bills occupied a principal part of the meeting.

Careful consideration was given to questions demanding action of the Legislature, and Regents Moore and Wheeler, with the President of the College, were appointed a special committee on Legislation.

Leave of absence was granted to Prof. Georges for the three months or less occupied by his commission by the United States Department of Agriculture, to Denmark, England, and Holland, for study of the dairy industry.

The plan of a short course of lectures for farmers, to begin February 14th, was approved as presented by the Faculty.

The estimates of the Council for Station expenditures during the current quarter were approved and allowed.

Tuesday evening was given, as usual, to a joint meeting of the Board and Faculty, in which, after testing a dinner prepared by the Cooking Class, the general condition and wants of all the departments were presented.

Three cases of delinquency upon land contracts were considered, and referred to the Secretary for further correspondence and investigation, with the hope of possible settlement.

Expenditures in the various departments were authorized as follows: Executive, upholstering furniture, \$30; Chemical, for office desk and work tables, \$90; Horticultural, wagon \$60, for potting room \$140, kits of tools with lock boxes \$275, plants \$25; Mechanical, small tools, \$15; Military, targets and ammunition, \$9; Physics, apparatus, \$80.50; Zoological, apparatus and specimens, \$45; Botanical, supplies and apparatus, \$7.

The employment of Mr. D. H. Otis, B. Sc., as assistant in the office of the Farm Department, was approved.

The question of enlarging the herbarium by purchase of plants was referred to a special committee consisting of President Fairchild, Regent Wheeler, and Prof. Popenoe, to report at the next meeting of the Board.

The Faculty were authorized to expend for the increase of the library, as soon as the funds are available, \$3000.

The employment of a competent taxidermist to mount the various skins now stored in the museum, was authorized.

Upon recommendation of the Farm Committee, authority was given to purchase stock hogs to follow the feeding steers in the experiment this winter.

The President of the College was authorized to provide additional room for the Secretary's office by temporary structure upon the east portico, if the plan, upon further investigation, is found feasible.

The Board adjourned, to meet on Tuesday, April 4th, at 2:30 o'clock P. M.

Money will buy blood, but breeding and feeding require skill.

A farmer needs to pick up, hang up, and clean up all the time.

On the average farm something should be growing and going all of the time.

GRADUATES AND STUDENTS.

Fannie Waugh, '91, is a successful teacher in the Marquette schools.

Inez Palmer, student last year, is teaching near Clifton, her home.

C. S. Criswell, Second-year in 1888-9, resumes his studies this week.

Grace Christy, First-year in 1886-87, visited the College yesterday.

Phoebe McCormick, Second-year 1890-1, was visiting College friends this week.

Delpha Hoop and Nellie McDonald, '91, were visitors to our library on Tuesday.

Misses Madeleine Milner and Bertha Winchip, '91, attended chapel exercises Friday afternoon.

Myrtle Harner, Second-year, drops out this term, but expects to re-enter College in the spring.

W. T. Anderson, of Parsons, Second-year in 1891-2, was visiting with Manhattan friends over Sunday.

W. J. Griffing, '83, writes on "Winter Work for the Horticulturist" in the *Kansas Capital* of this week.

Grace Wells, First-year in 1890-1, is teaching the school south of town, vacated by Nellie McDonald, '91.

W. H. Olin, '89, has been engaged as Instructor in Teachers' Institutes in Osborne and Chautauqua counties.

During Prof. Hood's absence Thursday and Friday, T. W. Morse and J. V. Patten, Third-year students, have had charge of the mechanics classes.

J. R. McNinch, Second-year in 1890-91, who left Manhattan as missionary to Soudan, writes that he reached his destination without mishap on December 8th.

A. Jackson, student of last year, called on Monday to visit old friends, and will spend some weeks here in reading and study, though he does not enter classes.

The name of F. A. Waugh, '91, appears as associate editor of Oklahoma's first and only agricultural paper, the *Farm, Field, and Forum*, which made its bow to the public from Guthrie this week.

F. A. Waugh, '91, stopped at the College a day or two the first of the week to say good-bye, before leaving for Denver, where he will do editorial work on the *Field and Farm*, one of the leading agricultural papers of the country.

W. H. Mattoon and H. E. Brown, students last year, have provided themselves with the most improved apparatus for throwing pictures upon canvass illustrating the life and times of Columbus, and will make a tour to California.—*Manhattan Nationalist*.

THE WEATHER FOR 1892.

BY PROF. E. R. NICHOLS.

The year 1892 was characterized by extremes in precipitation, February and March having the most rain-fall in thirty-five years, and June and September the least.

Temperature.—The mean annual temperature was 50.31° , which is 2.31° below normal. There have been but two colder years on our records: 1869 with a mean of 48.97° , and 1875 with a mean of 50.19° . The maximum temperature was 106° , on July 21st, and the minimum, -26° , on January 19th, an annual range of 132° . January, May, July, and December were more than 2° colder than normal. February and September more than 2° warmer. The last frost occurred on April 29th, the first on October 8th—a growing season of 162 days.

Barometer.—The mean pressure was 28.87 inches, which was .09 inch above the mean for nineteen years. The maximum pressure was 29.391 inches, at 9 P. M. on December 21st; the minimum, 27.946 inches, at 7 A. M. on April 4th, an annual range of 1.345 inches.

Precipitation.—The total rain-fall and melted snow was 30.46 inches, which is .23 inch above normal. The total fall of snow was 24.6 inches, which was 9.4 inches above normal.

Wind.—The total miles of wind was 94,931, which is 8,752 miles above the average for four

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years. The average daily velocity was 263.7 miles and average hourly velocity, 10.99 miles. The mean hourly velocity for the four years was 9.98 miles.

Below will be found a comparison with the preceding years:—

Year.	Number of rains.	Rains in inches.	Snow in inches.	Mean Temperature.	Maximum Temperature.	Minimum Temperature.	Mean Barometer.	Maximum Barometer.	Minimum Barometer.
1858	80	88.98	17.1	52.55	100	-16	29.50	29.50	27.95
1859	58	36.21	15.8	53.55	104	-8	29.45	29.45	28.10
1860	30	15.52	14.2	57.66	115	-6	29.50	29.50	28.18
1861	51	34.66	18.5	54.17	99	-9	29.50	29.50	28.18
1862	54	26.20	17.8	53.21	103	-6	29.50	29.50	28.16
1863	66	40.45	25.8	54.26	96	-13	29.50	29.50	28.16
1864	63	20.25	6.8	52.74	104	-13	29.50	29.50	28.16
1865*	60	35.25	8.9	53.52	93	-8	29.50	29.50	28.16
1866†	44	25.86	9.2	52.73	98	4	29.50	29.50	28.16
1867	57	26.50	10.5	51.04	98	12	29.50	29.50	28.16
1868	63	30.09	14.7	50.98	98	-16	29.50	29.50	28.16
1869	74	27.66	8.1	48.97	93	-4	29.50	29.50	28.16
1870	65	23.10	4.9	53.71	102	-3	29.50	29.50	28.16
1871	59	28.84	14.3	53.91	100	-7	29.50	29.50	28.16
1872	56	35.78	15.3	51.22	98	-10	29.50	29.50	28.16
1873	59	25.98	16.3	51.52	104	-14	29.50	29.50	28.16
1874	49	18.51	35.5	53.22	109	-4	28.76	29.50	27.95
1875	61	18.16	8.3	51.19	98	-17	28.75	29.45	28.10
1876	49	43.86	21.5	51.63	95	-6	28.79	29.50	28.18
1877	67	41.09	6.5	54.14	100	-10	28.70	29.50	28.18
1878	74	39.12	21.8	54.43	95	-7	28.72	29.33	27.98
1879‡	54	36.13	2.3	53.54	99	-14	28.70	29.42	27.97
1880	57	29.89	6.0	53.50	97	-16	28.62	29.21	27.88
1881	61	29.69	27.3	53.98	105	-18	28.63	29.19	27.80
1882	55	28.43	14.0	54.32	102	-7	28.75	29.23	28.04
1883	77	36.79	5.8	50.80	98	-17	28.63	29.40	27.89
1884†	64	33.72	11.8	51.32	98	-22	28.63	29.30	27.72
1885	59	24.89	13.5	50.94	99	-18	28.67	29.33	28.00
1886	60	30.10	23.6	52.78	110	-19	28.88	29.66	28.02
1887	64	29.92	18.6	52.68	110	-23	28.96	29.88	27.90
1888	54	31.29	21.5	51.28	107	-26	29.03	29.86	28.44
1889	49	30.97	7.5	52.20	101	-10	29.06	29.80	28.11
1890	66	23.02	16.0	52.86	107	-19	29.42	29.55	27.93
1891	61	30.56	28.4	52.00	102	-4	28.90	29.51	28.16
1892	66	30.46	24.6	50.31	106	-26	28.87	29.39	27.95
Means.....	60	30.23	15.2	52.62	101	-12	28.78	29.50	28.06

WIND RECORD.

Year.	Total Miles.	Mean Monthly.	Mean Daily.	Mean Hourly.	Maximum Hourly.
1880	75014	6251	208.37	8.68	44
1890	84494	7041	234.70	9.78	51
1891	90278	7523	250.77	10.45	56
1892	94981	7911	263.70	10.99	49
Means.....	86179	7182	239.39	9.98	50

* October, November, and December missing.
† January, February, March, and April missing.
‡ January missing.

COLLEGE ORGANIZATIONS.

Student Editors.—M. F. Hulett, Edith McDowell, C. H. Thompson.

Young Men's Christian Association.—President, J. E. Thackrey; Vice-President, J. B. Thoburn; Recording Secretary, G. L. Melton; Corresponding Secretary, M. F. Hulett; Treasurer, E. J. Hartzler. Meets every Sunday at 3 o'clock P. M. in Horti Cultural Hall.

Scientific Club.—President, J. T. Willard; Vice-President, Minnie Reed; Secretary, Marie Senn; Treasurer, F. A. Marlatt. Meets on the second and fourth Friday evenings of each month in Chemical Laboratory. Admits to membership advanced students and College officers.

Webster Society.—President, M. F. Hulett; Vice-President, C. F. Puetze; Recording Secretary, J. M. Williams; Corresponding Secretary, J. Stingley; Treasurer, E. G. Gibson; Critic, M. W. McCrea; Marshal, G. A. Dean, Board of Directors, G. W. Smith, H. G. Pope, J. V. Patten, C. E. Shoup, C. S. Milburn. Meets every Saturday evening. Admits to membership gentlemen only.

Alpha Beta Society.—President, C. H. Thompson; Vice-President, Fred Hulse; Recording Secretary, Onie Hulett; Corresponding Secretary, Jennie Smith; Treasurer, A. E. Ridenour; Critic, Ivy F. Harner; Marshal, W. S. Trader; Board of Directors, C. H. Thompson, J. E. Thackrey, W. O. Lyon, Stella Kimball, Sadie Moore, C. M. Morgan, Onie Hulett. Meets Friday afternoon at 2:30 o'clock. Admits to membership both ladies and gentlemen.

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Ionian Society.—President, Nora Newell; Vice-President, Kate Pierce; Recording Secretary, Margaretha Horn; Corresponding Secretary, Flora Day; Treasurer, Ida Page; Marshal, Laura Day; Critic, Maude Knickerbocker; Board of Directors, Margaretha Horn, Mary Lyman, Olive Wilson. Meets Friday afternoon at 2:30 o'clock. Admits to membership ladies only.

January 14.

The new term's work in the Webster Society Hall opened with bright prospects, judging from the large number of members found in their respective places when Pres. Dickens called the Society to order at 7:30 o'clock Saturday evening. H. G. Pope led in prayer. D. M. Steele, A. E. Fulhage, J. Wooton, C. Dolby, S. R. Vincent, and Mr. Meyer were elected members, and all but Mr. Meyer were initiated.

As the regular term election of officers was to take place, the order of debate was passed. After an oration by M. W. McCrea, C. S. Milburn read an entertaining and nicely composed essay on "A trip Overland" through Colorado, Wyoming, and Dakota. C. A. Kimball delivered the Napoleon declamation, when the news of the week was presented by A. C. Cutler. Violin music furnished by Forsyth and Ellis, T. W. Morse, committee. The following selections were made for Society officers for the winter term: President, M. F. Hulett; Vice-President, C. F. Puetze; Recording Secretary, J. M. Williams; Corresponding Secretary, J. Stingley; Treasurer, E. G. Gibson; Critic, M. W. McCrea; Marshal, G. A. Dean; Board of Directors, G. W. Smith, H. G. Pope, J. V. Patten, C. E. Shoup, C. S. Milburn. E. A. D.

KANSAS EDUCATIONAL NOTES.

BY PROF. J. D. WALTERS.

There were thirty-six new school districts established in Kansas in 1892.

There were 179 schoolhouses erected in Kansas last year at a cost of \$151,620.

Farmers can't get too much book education. They need as much education as any other class.

The 3,722 male teachers of Kansas receive an average monthly salary of \$52.10 and the 6,716 female teachers an average of \$35.42.

Ex-State Superintendent Winans, in his report for 1890-1, recommends an increase of the membership of the State Board of Education. The Board as constituted at present consists of four members who hold their places ex-officio as the State Superintendent and the Presidents of the three higher educational State institutions.

A fire in Ramsey and Co.'s printing establishment at Kansas City, a few days ago, destroyed every one of the 5000 copies of a history of the schools of Kansas City, Mo., written by Supt. T. M. Greenwood for distribution at the Columbian Exposition. Fortunately the Superintendent has another manuscript copy left, so that the interesting volume can be reprinted.

The Clay Center *Times* seems to be worried over the complexity of the name of one of the Professors of the State University. It says: "What a terrible time the papers are having with the name of the new State University fiddler. When he farmed up in this country he was known as Dome, pronounced Demmy. A little later as Dome Geza, and still later as K. Dome von Geza. Now it is Herr K. Dome von Geza, and one Lawrence paper calls it Mr. Herr K. Dome von Geza. The Chancellor in his report takes a new tack and writes him down Mr. K. Geza Dome. Why not settle this once and forever by calling him Smith K. Smith."

The eighth biennial report of the Board of Directors of the Kansas Historical Society reveals the increasing value of the Society, not only as the preserver of the history of the State, but, through its collections to the student of the Great West, to the ethnologist, to the scientist in many lines of investigation, and to the general public. Through its system of exchanges the Historical Society's library is regularly enriched from other great libraries and collections in this country and Europe. In this way in the year past, 331 volumes have been received from the Interior Department, and 513 volumes from Quincy, Mass., giving the history of the very beginnings of our permanent national existence. Most interesting, too, are the manuscript collections. Among the recent acquisitions of this sort is the journal of the Rev. Jonathan Meeker, comprising 732 closely written foolscap pages, beginning in 1832 and closing in 1855. This is a picture of life in wild Kansas for over twenty years prior to its occupation by white men. The journal has been in possession of Mr. Meeker's family for thirty-seven years. Of the Historical Society's library it may be said that it is not only the repository of public archives, but in it may be found records of interest to hundreds of families, not of Kansas only, but of Missouri and the wide valleys of the Missouri and Mississippi.—*Kansas City Star*.

THE PHILOSOPHER ON THE FARM.

How many things are better than money! The farmer is king of an island and rules it as he likes. In his woods trees are forming out of air and sunshine for his fire, and he has only to cut them amid the sweet odors of the forest; unfortunate men buy fuel by distasteful labor for others. How pleasant to look with the eye of an owner on noble trees and the sweep of forest-covered hills; to feel the firm, green sod beneath the feet; to see the gently rounded slopes of fields long familiar which have yielded their increase so many seasons, the memory of past fruitfulness mingling with the prospects of the future! Your time is your own, and a portion of the great planet is yours, drawing dividends of rain and sunshine and snow; birds come from afar to live in your trees. What depth of peace and rest and content are yours as the shadows lengthen and the day of summer closes, when the winter day fades amid thickly falling snowflakes—but volumes might be written in this exalted key. "Are there, then, no disagreeables in your paradise?" Y—es, perhaps, but

not many, rightly so-called. It takes a grain or two of philosophy to see the beauty of drowned oats, decayed potatoes, etc., but what a scrape we would get into if the hope we sow with each seed should spring into full fruition! We couldn't find time to attend our funerals.—*F. S. Gilbert*.

As I have been a reader of the *Tribune* thirty-five years and much benefited by its instructions, and rarely give anything in return, I now note a little experience in treating farm stock kindly: Two sons, farming about 300 acres of land each, keep herds of cows, colts, and a flock of sheep. They never strike or treat any animal in a rude or boisterous manner. The first requirement of their hired help is that they never strike or in any way excite any animal, and always abstain from loud or profane language while handling them. The result is, all animals on these farms are quiet, gentle, and profitable; their natures in many instances are changed to suit their owner by this good care and treatment. By such a course farming becomes a pleasant and profitable business.—*Correspondent New York Tribune*.

MANHATTAN ADVERTISEMENTS.

BOOKS AND STATIONERY.

FOX'S BOOK STORE.—College Text-Books, School Stationery, Pencils, Scratch-books, Ink, etc. Manhattan, Kansas.

R. LOFINCK deals in new and Second-hand Text-books and School Supplies of all kinds, gold pens, etc. '75.

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THE INDUSTRIALIST.

VOLUME XVIII.

MANHATTAN, KANSAS, SATURDAY, JANUARY 28, 1893.

NUMBER 22.

THE INDUSTRIALIST.

PUBLISHED WEEKLY

BY THE PRINTING DEPARTMENT,

STATE AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY AND STUDENTS.

SUBSCRIPTION, FIFTY CENTS A YEAR.

[Entered at the Postoffice at Manhattan, Kan., for transmission through the mails as Second-class Matter.]

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COLLEGE BUSINESS.

Loans upon school-district bonds are to be obtained from the Loan Commissioner.

Bills against the College should be presented monthly, and, when audited, are paid at the office of the Treasurer in Manhattan.

All payments of principal and interest on account of bonds or land contracts must be made to the State Treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. Geo. T. Fairchild, Managing Editor. Subscriptions are received by Supt. J. S. C. Thompson.

Donations for the Library or Museums should be sent to the Librarian, or to Prof. Mayo, Chairman of Committee on Museums.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several Professors and Superintendents.

General information concerning the College and its work,—studies, examinations, grades, boarding-places, etc.,—may be obtained at the office of the President, or by addressing the Secretary.

Application for Farmers' Institute should be addressed, as early in the season as possible, to the President.

The Experiment Station should be addressed through the Secretary.

HOUSE HEATING. II.

BY PROF. O. P. HOOD.

AS mentioned in the previous paper, the great objection to heating by open grates is the lack of economy. But very little of the total heat of the fuel is utilized except that from direct radiation from the flame and incandescent coals. No exact statement of this amount can be made, but it is probably between 25 and 40 per cent of the total heat, the radiation from the flame being much less than from the incandescent coal. This would limit the efficiency of a grate to about 20 per cent. In some recorded experiments only 6 or 7 per cent of the total heat of a wood fire was radiated into the room, while from coal about 13 per cent was utilized. An open grate will draw up the chimney from 1000 to 1500 cubic feet of air per pound of fuel. While this usually induces cold drafts from every window and door towards the grate, it is in most rooms a blessing in disguise, as it provides some sort of ventilation.

The evolution of the modern stove from the grate probably began in 1713 when the little treatise of M. Gauger appeared in Paris. It was here suggested that the back, sides, and hearth of the grate be made hollow, and receive cold air from outside and deliver the warmed air into the room. The back and sides thus became important warming surfaces, and soon the grate was built in the room, to leave a space between the back of the back lining and the wall. Stoves of this form are not uncommon now, having an open fire in front and conducting the gases between back and side plates to the chimney. The stove then began to heat in two ways: by direct radiation from the flame, the coal, and the heated metal surfaces, and also by contact of the heated sides with an induced current of air. This latter was pure gain, as the usual grate returned no current of heated air into the room, but drew it up the chimney. The expediency of introducing such a large body of cold air above the fire as was drawn in by the chimney was soon doubted, and the closed stove, with its fire on a grate, admitting only the necessary air below the grate and through the coals, was gradually developed.

The stove has gradually come to be considered a piece of furniture, but before the middle of the last century it was a fixed construction. The modern highly ornamented stove as a piece of home furnishing is the result of the last fifty years of foundry development. Cast iron is eminently fitted for the purpose of stove making. It lends itself in shape to the fancy of the designer, and, above all, it will give off more heat per square foot than sheet iron or brick, this in the ratio of 3.6 to 1.4. While this excellent performance is in its favor, a serious fault is developed if plates are heated above 800°, as at that temperature injurious gases of incomplete combustion readily pass through the heated plate. This makes a strong objection to hot air furnaces.

The efficiency of the common coal stove varies greatly, probably between the limits of twenty per cent and ninety per cent, with the average probably forty per cent. The efficiency expresses the per cent of the total heat in the fuel which is actually obtained in the warmed air and contents of the room. The following table shows the number of heat units derived from perfect combustion of various fuels:—

Average wood.	779 B.T.U.
Penn. Anthracite	13500 to 14250 B.T.U.
Indiana Block	13217 B.T.U.
Cherokee (Kansas)	12962 B.T.U.
Leavenworth (Kansas)	12113 B.T.U.
Cloud County (Kansas)	9563 B.T.U.

From Kansas coal we can expect about 5000 heat units from each pound of coal burned in an

average stove. In general, a slow rate of combustion furnishes the highest efficiency, but the easily ignited soft coals are difficult to control, and a very large per cent of heat is lost up the chimney. The great advantage of hard coal lies not in the fact that it contains more heat per pound, but in the fact that perfect combustion can be maintained at a low rate. A good hard-coal burner of some size can keep a brisk fire with the escaping chimney gases at about 200°, while with soft coal the gases are usually nearer 500° to produce perfect combustion. A common fault of soft-coal stoves lies in too close a connection to the chimney. Stove makers object to making circuitous passages for the smoke of soft coal, as the passages soon fill with soot; but if these were put in and were of ample size, it would lead to much economy, even counting the bother of frequent cleaning.

The cleaning of sooted passages should be recognized as one of the objections to the use of soft coal instead of using so large a per cent of the total heat to carry away soot that might be deposited.

A more careful management of the house fire usually follows when it is learned that live coals supplied with an insufficient quantity of air burn away in a combustion (carbonic oxide) which gives off only one-third to one-half of the heat which would be given off if an ample supply of air were allowed.

In the selection of a stove for home heating, the greatest economy is found in a larger stove. Especially for hard coal a stove with a large grate keeping up a slow rate of combustion, and with sufficient surface to take the heat from the gases and deliver them into the chimney at a low temperature, will be more economical than a smaller one which requires a more brisk fire to heat the limited surface exposed sufficient to heat the room. A rough estimate used by the French is to allow one square foot of stove surface to 325 cubic feet of room capacity. From a limited number of observations it seems that in Kansas one square foot of stove surface should be supplied to each 200 cubic feet of average living room.

A good deal of invention has been applied to stove construction. Smoke-consuming devices are the most frequent, and the ground has been very thoroughly covered in principle if not in detail. Before 1850 some eighty-four English patents for the purpose were granted. It has been shown that the best smoke consumer is rather a smoke preventer, and lies in careful firing and a sufficient supply of air to the fuel at a temperature sufficient to unite with the disengaged carbon. If this air must first go through a bed of hot coals it may be heated sufficiently, but it is not sufficient in quantity at the moment of adding fresh coal. Numerous devices are used for introducing heated air above the coals in just sufficient quantity at the time of adding fresh coal. A steam jet, drawing air on the injector principle, is used. Openings in the bridge wall of a boiler setting are used; also fan blowers for introducing the air. A simple device consists in putting a small damper in the firing door to admit air just after firing. The most successful method at present seems to be the down draft method. Two grates fired alternately are so arranged that as fresh coal is put in one the draft draws the new-formed smoke and gases down through the coals of the other and through the grate. Water-tube grates are necessary.

The earliest method of carrying heat from one central place to distant rooms was without doubt a system of hot-air flues running from the central heater to each room. This has had a various de-

velopment. The Chinese have for ages heated their rooms by means of a system of flues laid back and forth in the floor, the product of combustion traversing these flues and heating the room. This is occasionally used to heat greenhouses now.

By some northern nations a raised platform made of brick was heated in the same way, the platform serving at night for a bed. The Roman hypocaustum was on this plan. A later method, described by Seneca (A. D. 64), consisted of flues in the vertical walls leading to each room, the heated gases from the fire going directly to each room, and being somewhat controlled by a damper over the outlet. Such was the beginning of the modern method of heating large buildings by a hot-air furnace.

OLD HOMES MADE NEW.

BY PROF. J. D. WALTERS.

[Excerpts from a paper read before the State Horticultural Society.]

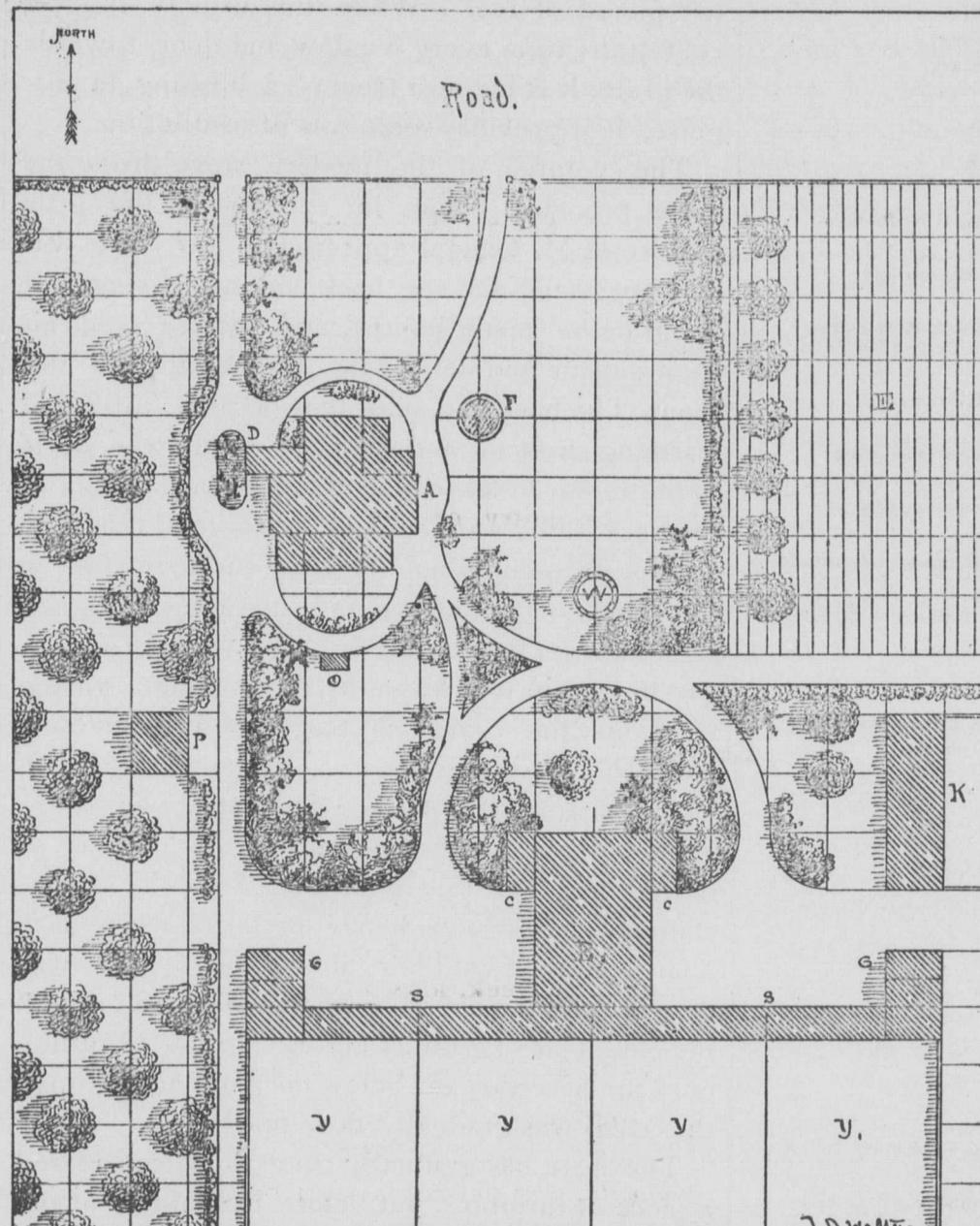
OUR State is among the youngest in the Union, yet it is already dotted with old homes that need remodeling. The growth of wealth and taste has been such that comparatively few families are satisfied with their abodes and the character of their surroundings. I venture to assert that hardly half a dozen of those assembled here tonight would build another home and plant another yard after the pattern of the one they now occupy. The question of beautifying country and city residences by tasteful arrangement of buildings, walks, drives, lawns, trees, and shrubs is therefore largely a question of possible alterations, of an adjustment of ideals to hampering existing conditions.

Most homes, in the country as well as in the city, lack space, yard space, especially in front of the dwelling; and this, though it is an essential, is often hard to obtain. To appear to advantage from the road or street, the dwelling should stand back from two to six times its total height. In a suburban quarter, a building two full stories high, with usual foundation and gable, should stand not less than sixty feet from the pavement, unless the lot is very narrow or the buildings on both sides stand much closer. Some rare cases excepted, it is, of course, impossible to push an old building back; the landscapist must, therefore, think of means to make the existing space appear as large as possible. More space—a considerable expanse of lawn free of trees—should be added to one side, and the other side planted in a dense grove of forest or orchard trees, so as to produce the effect of a change of front. The building of a main entrance on this lawn side, and the closing of the old front door, or the changing of it to a bay window, will greatly assist in producing the desired effect, as will also the changing of the straight front path into a slightly and gracefully curved one.

Another frequent fault of our homesteads is the nearness of the barn, or at least of the cattle corrals and hog pens, to the dwelling and to the road. Where the home is on a section corner or street corner, the house usually faces one of the intersecting roads and the barn the other, or, still worse, the house is on one side of the road and the barn on the other, with hardly a tree between them. This state of things is difficult to remedy. If the barn is simply a shell of scantlings, boards, shingles, it ought to be moved back by all means. The selection of the proper place for it is, of course, a matter of locality and convenience, so that no rule can be given for its location, except that it should be further from the road than the house. If the barn cannot be moved, then move all the cattle yards, pig pens, hay and straw stacks, outbuildings, lumber piles, etc., and close the entrances toward the road; i. e., have the barn face toward the farm. A little carpenter work and a coat or two of paint will do the rest. Sometimes it is possible to hide a stone barn

behind a thick covering of the Virginia creeper (*Ampelopsis quinquefolia*). Sprouts of this beautiful vine can be found in almost every timber fringe, and trellises are not required; on a stone or brick wall it will hold itself.

One of the ugliest features of a multitude of homes is the dilapidated well-house and the blue-painted cistern pump, especially when they are surrounded by a labyrinth of washing utensils, milk pails, and butter churns, and when herds of grunting pigs, droves of quacking ducks, and flocks of complaining chickens explore the everlasting, ill-smelling quagmire. Health and decency require its abatement. Where it is impossible to remove the whole to the rear, remove the implements and keep the lawn clean by laying a waste drain. It is a matter of very small expense, however, to carry the water to the kitchen by means of pumps and galvanized iron pipes. A few dollars will cover the entire expense, and the women will save as much on shoes in a few months.



EXPLANATION OF PLAN.

The sides of the small squares measure 20 feet each. The tract, as shown here, less the road on the north, but including 60 feet of the orchard, measures 360 feet by 340 feet, or about 3 acres.
 A—Dwelling.
 P—Carriage stop.
 F—Round flower bed.
 O—Outhouse.
 W—Windmill.
 D—Dwelling.
 P—Chicken house.
 B—Barn.
 C, C—Granaries.
 E—Vineyard and vegetable garden.
 Y—Cattleyards.
 There is no tank at W. the water being carried to the house, the barn, the pens and sheds through pipe lines.
 The open space south of the outhouse is occupied by a stationary clothesline.

The one thing that should not be moved is the wind-mill, the most picturesque feature of the average Kansas home. The water should be carried from it to where it is needed by a system of cheap iron pipes, so that the lawn can be extended to the very edge of the platform; then paint the wood-work in gorgeous colors, plant the wisteria and the climbing rose around its skeleton supports, and it will be a thing of beauty and a joy forever.

Of the roads and walks, little need be said, except that they should be located where wanted, and never so as to transverse the main lawns. Graceful curves are more natural than straight lines, and please the eye better, but there ought to be a real or apparent reason for every curvature. The roads should be built with telford beds, and the walks with gravel macadam. Coarse cinders are also a first-class material for walk construction.

We now come to the main question pertaining to the remodeling of old home grounds,—that of

the treatment of the lawns, trees, and shrubs. Trees must be cut down where they are not wanted, and new ones planted where they are needed. It is, of course, very desirable to leave many of the old trees, but none should be left where they do not coincide with the ideal landscape in the mind of the gardener. It has been said that the heaven of the average Kansan is a forest of beautiful trees, but it is safe to add that as time advances the forest will permit some sunlight to penetrate the sylvan roof. There should be a lawn in front or to one side of the building unbroken by trees or shrubs, so as to contrast by its well-kept green sward and sunny brightness with the tree groups and shrub belts. It should be large and permit mowing with a horse mower, because where all mowing has to be done by hand it is often left undone. There has been a great deal of discussion of late with regard to the best lawn grass for farmers' homes. The beautiful smooth and dark green Kentucky blue grass does not do

well in many localities west of Topeka unless it can be watered during the summer months. It always starts well during the spring, but about the first of August, or earlier, it becomes yellow and thin. Much can be done by manuring and care in cropping. Some people overdo the shaving most decidedly, even when they can use the hose to revive the grass again. My taste is for a natural lawn. Where the Kentucky blue grass will not thrive, I would plant the Texas variety, or, better still, plant a very dense orchard grass mixed with red clover and meadow oats. This, with some care, will live, look green and natural, and produce one or two crops of first-class hay every summer.

Shade trees on lawns should not be planted in rows, but in groups far enough apart to give every tree a chance to develop its crown. On three-fourths of all Kansas home lots the trees are so crowded that they cannot develop properly. The trunks should be trimmed up, and the branches be permitted to droop in natural and graceful curves. In the foreground all large trees ought to be branchless for from nine to fifteen feet.

The danger of sun-scalding of such tree is no greater, provided they are not crowded. Every imperfect specimen ought to be cut down. Above all, cut down all poor cedars. The red cedar, the Kansas as well as the northern variety, if kept low and given plenty of space and sunlight, is one of the most beautiful lawn evergreens, but when neglected or crowded it becomes the seediest, and there is no patent medicine that will restore it to youth and beauty. The same can be said of the multitude of flowering bushes; these should be cut to the ground to force new shoots, or they should be dug up. The trees, bushes, and evergreens that fit the plan should be trimmed, but not too severely. No branch should be cut off that has a diameter of more than three inches, or it will rot and ultimately kill the tree, even if painted. The wholesale lopping off of the whole crown, as we see so often, is an outrage on nature and art,

CALENDAR.

1892-93.

Fall Term—September 15th to December 23rd.
 Winter Term—January 9th to March 31st.
 Spring Term—April 3rd to June 14th.
 June 14th, Commencement.
 1893-94.

Fall Term—September 14th to December 22nd.

TO SCHOOL OFFICERS.

The College Loan Commissioner has funds now to invest in school district bonds *at par*. The law requires that no bonds be sold *at par* or less without being first offered to the State School Fund Commissioners and the State Agricultural College. Address T. P. Moore, Loan Commissioner, Holton Kan., at once.

LOCAL MATTERS.

Prof. Popenoe took part in a Farmers' Institute at Hiawatha on Thursday and Friday.

Remember the short course in agriculture which will commence on February 14th.

Secy. Graham has been absent from his desk a part of this week on account of sickness.

New horizontal bars, rings, and ladders have recently been added to the Athletic equipment.

The Eighth Annual Report of Regents and Faculty is printed, and will be mailed next week.

Five new albums in the President's office contain nearly all the new College views, which are the admiration of all who see them.

The Annual Exhibition of the Hamilton Society, preparations for which are being elaborately made, will be given next Saturday evening.

The Class of '93 met Wednesday afternoon and unanimously decided in favor of abolishing speaking by the graduates at commencement.

Mrs. C. C. Gardiner, of Bradford, spent several days this week with her daughters, Mrs. J. T. Willard, and Maud Gardiner, Fourth-year.

Mr. J. F. Willard, of Waubaunsee, visited with his son on Wednesday, and spent several hours in an inspection of the various departments.

Bulletin No. 36, detailing experiments with sorghum and sugar beets, is just from the press. Extended notice of it will be published next week.

The Cooking Class began yesterday to serve the usual Friday lunches to a limited number of students, and as a consequence, standing room around the ticket office is above par.

Bulletin No. 35, from the Veterinary Department, dealing with "Lumpy Jaw of Cattle," and "Some Observations upon Loco," has just been printed. Further mention will be made next week.

Mr. Broyles, representing Gormulley & Jeffery, of Chicago, makers of "Rambler" bicycles, called at the College on Tuesday with a sample wheel, and while he did not take any orders,—his business being the appointment of agents,—made many friends for the machine.

The proposed short course in agriculture promises to speedily become popular with the farmers of the State, judging from the tenor of the letters received in reply to the letter circulars mailed the first of the week. All who plan to attend should lose no time in communicating with President Fairchild.

President Fairchild was called to Topeka Wednesday to confer with the Ways and Means Committee of the Senate in the preparation of a bill for the release of the College income fund, which has, by the decision of the Attorney General, been locked up for about fifteen months. The Committee has reported favorably on the bill.

The Sixth Division of the Third-year Class appeared in Chapel yesterday afternoon with the following programme: "America for the Americans," Stella V. Kimball; "The Fading Leaf," O. A. Otten; "Religion in Dress," Florence Corbett; "The Dawning Day," J. U. Secrest; "The Advantages of College Life," Ida Pape; "Liberty and Light," C. C. Smith; "A New Year's Dinner," Maude Parker.

In a letter to Prof. Walters, concerning the annual short course of lectures to farmers, Prof. Henry, of the Wisconsin Agricultural College, says: "We have nearly seventy short-course students with us, and almost a hundred in the Dairy School. Many States are represented in both courses. I believe these short courses afford excellent help to that class of young men who can-

not spend a great deal of time in studying agriculture. We endeavor to make this course intensely practical."

College Hill Alliance and the County Alliance have endorsed Ed Secrest for local Regent of the College, and petitions are being circulated requesting the Governor to appoint him to that position. Mr. Secrest is admirably qualified for the place, has for years taken a lively interest in the College, and we believe his appointment would not only please the Populists of this county, but also the College authorities.—*Manhattan Republic*.

The Hamilton Society has for a long time felt the need of more room than is afforded in the present attic quarters, and although the membership is this year smaller than last, the Society is yet as uncomfortable as a small boy in a last year's suit, and has appealed to the College authorities for relief. A committee of the Faculty to which the matter was referred is unable to suggest a remedy for the crowded condition of things here as elsewhere under existing conditions, and can only hope, with the friends of the College, that the Legislature will provide room according to our needs.

In his message to the Legislature, Governor Lewelling has this to say of the Agricultural College: "The Board of Regents of the institution, in their eighth annual report, declared: 'The past two years have shown more than usual prosperity in the growth of the institution, as well as in its administration. Although crowded beyond the capacity of the buildings for most satisfactory work, the College in every department has been well maintained, and the work of educating the sons and daughters of farmers and mechanics in line with prominent industries of the State is so well maintained as to make the Kansas State Agricultural College the largest of such institutions in the country, or even in the world.' Instructive matter in the report is found under several headings, and particularly under those of 'Experiment Station' and 'Farmers' Institutes.' The needs of the institution for 1893-5 are set forth, as viewed by the Board of Regents, and are worthy the careful scrutiny of members of the Legislature."

GRADUATES AND STUDENTS.

G. K. Thompson, Fourth-year, spent two days this week in Blue Rapids visiting his sisters.

E. B. Coulson, Second-year in 1891-2, returns to College this week, after a term's absence.

E. C. Abbott had charge of the logic class, Thursday, during President Fairchild's absence.

C. P. Hartley, '92, has so much improved in health as to be able to ride out one day this week.

John and Marie Blachly, students last year, were visitors recently. They hope to return another year.

Lillie B. Bridgman, '86, is the author of an interesting story entitled "A Tragedy of Similitudes and Contrasts," which appears in *Frank Leslie's Popular Monthly* for February.

W. P. Tucker, '92, called upon College friends yesterday, and is visiting in the vicinity over Sunday. Mr. Tucker is now at the editorial helm of a newspaper at Douglas, and reports a lively business.

Ruth Stokes, '92, has returned to College to take a post-graduate course in Domestic Economy and Chemistry, and she will also have charge of a class in English. Since graduation in the spring, Miss Stokes has clerked in the home post-office at Garnett, under her father.

Rev. Geo. H. Perry, Third-year in 1877, has resigned the pastorate of the Congregational Church at Kiowa, and is now staying with his parents in this city. His wife, Grace Parker-Perry, '80, will remain at Kiowa until his sister, Bessie Perry, Second-year in 1886-7, finishes her term of school.

By request of Prof. Geo. H. Failyer, of the Manhattan Agricultural College, D. G. Robertson ['86] is securing several boxes full of Osborne County soil to place on exhibition in the Kansas Building of the World's Fair. We want to emphatically state right here that no county in the entire State can make a better display of rich dirt than Osborne. W. H. Smith, of Hancock, is filling one of the boxes with the alluvial soil from his fine farm.—*Osborne Farmer*.

SCIENTIFIC CLUB REPORT.

JANUARY 13th, 1893.

The Scientific Club was called to order by President Willard. The minutes of the two previous meetings were read and approved. The principal paper of the evening was presented by Prof. Hitchcock. After some introductory remarks on the necessity of a communicating medium for the transfer of thought, the usefulness of language as accomplishing this, the relation of dialects to language, and the need of special terms in all branches of art, literature, and science, attention was turned to the special field of botanical science, and more particularly to that known as botanical nomenclature. Certain plants early received names which were often local in application, but since the written language of Europe was Latin, the scientific names gradually assumed a degree of uniformity. Little was known concerning the structure and affinity of plants, yet certain natural groups have been long recognized. The generic name of the willows, grapes, oaks, plums, apples, and many other groups is the old Latin name, by which these have long been known. The name, however, of a species was essentially a description. For example, several species of clovers are described in an old book, a few of which are as follows: *Trifolium montanum*, *Lupulinum*; *Trifolium montanum*, *purpureum*, *majus*; *Trifolium montanum*, *album*; *Trifolium Hispanicum*, *angustifolium*, *spica dilute rubente*.

"To add to the difficulty, there was no attempt at classification. In 1700, Tournefort made a great advance. He attempted to define genera and refer all known plants to a named genus. In this he succeeded fairly well, but he failed to add much to the known facts regarding affinity. We find the Hackberry, Buckthorn, English Ivy, Grape, Barberry, and Blackberry comprising one section because of a certain external resemblance in the fruit."

The history of classification was traced up to the time of Linnæus. Tournefort's work on Genera and Linnæus' great work, Species Plantarum, were passed around to show the great advantage of the binomial system introduced in the latter. The descriptions were much the same in form as the older works, but a specific name was printed on the margin, beside the description to which it referred. The above-mentioned species of trifolium became respectively, *Trifolium spadiceum*, *Trifolium alpestre*, *Trifolium montanum*, and *Trifolium squarrosum*.

But, beautiful as was this system, it was subjected to much abuse. New names were given to old plants. New combinations were made by splitting old genera into two or uniting two into one. Since genera are limited by botanical opinion, many of these changes were unavoidable. Sometimes a botanist would discard a name given by himself, as, *Anemone Canadensis*, Linnæus' *Systema*, 1768 being the same as *Anemone Pennsylvanica*, Linn. *Mantissa*, 1771. Another example of theft in nomenclature is the following: The genus *Nymphaea* of Tournefort and Linnæus included the white and yellow water lilies. Salisbury in 1805 separated the white ones under the name of *Castalia*, retaining the name *Nymphaea* for those with yellow flowers. The next year Smith gave the name *Nymphaea* to the white-flowered species and gave a new name, *Nuphar* to the yellow-flowered group, thus doing away with Salisbury's name entirely.

Another source of confusion was the tendency to give names in honor of eminent men. The Botanist Crantz had no less than six genera named for him. Our big trees of California were first named *Sequoia*. After this an Englishman changed this to *Wellingtonia*, from patriotic motives. An American, for the same reason, changed this to *Washingtonia*.

"Confusion became worse confounded till botanists were aroused to the necessity of taking some action. In 1867 there was held at Paris an International Botanical Congress for the purpose of discussing this very question. Without going in-

to details, it is sufficient to say that Alphonse De-Candolle, one of the leading systematists, was empowered to frame a set of laws of botanical nomenclature. This he did, and the laws were, with a few minor changes, adopted by the Assembly. This apparently gave a basis for future action, and so it did except for certain cases. It was recommended in Article 57, "When a species is moved into another genus, the specific name is maintained." But there were numerous cases where this had not been done. And the question soon arose, should it be done now? That is, should a long-used combination be set aside and the original specific name be taken up. Again, should a long-used name be discarded for another in the same genus which had priority, though obscurely published. And, above all, what should be taken for the starting point for priority of genera? During the last ten years these questions have been discussed with increased interest.

A bomb shell was thrown into the botanical camp by the publication, in 1891, of a book entitled "Revisor Generum Plantarum," by Otto Kuntze, of the Berlin Botanic Garden. In this work the author endeavored to establish the nomenclature of genera upon an arbitrary basis. He took 1735 as the date from which to reckon. This is the date of publication of the first work of Linnaeus, his *Systema Naturae*, Ed. 1. Linnaeus' Spec. Pl. 1753, was taken as the starting point for species. He re-named all the species when any genus name gave way to an earlier one, and in this way formed 30,000 new combinations, which must be quoted as O. K. The botanical world stood aghast. Some clapped their hands and cried, "Bravo!" Some said, "The fools are not all dead yet." Some were in favor of paying no attention to it. But there it was. The conviction gradually grew that something must be done, and that preferably by some association, congress, or the like. June 20th, 1892, a circular was issued from Berlin, asking botanists to agree to the following rules:

I. The starting point of the priority of the genera, as well as the species, is the year 1752, resp. 1753.

II. *Nomina nuda* and *seminuda* are to be rejected. Pictures alone, without diagnoses, do not claim any priority of a genus.

III. Similar names are to be conserved, if they differ by ever so little in the last syllable; if they differ only in the mode of spelling the newer one must fall.

IV. The names of the following larger or universally known genera are to be conserved, though after the strictest rules of priority they must be rejected; in many of them the change of the names now used is by no means sufficiently proved.

In August, 1892, the Botanical Club of the A. A. A. S. considered the subject and finally adopted a set of laws which will be found in the *Botanical Gazette*, September, 1892.

The history of the nomenclature of two of our common trees will illustrate some of the points. Our soft maple was first named *Acer saccharinum* L., Spec. 1753, and the sugar maple, *Acer saccharum*, *Marsh.* Arb. 1785. The latter was afterwards changed to *Acer saccharinum*, *Wang.* Amer. 1787, in consequence of which the soft maple was changed to *Acer dasycarpum*, *Ehrh.* Beitr. 1787. This, of course, gives rise to considerable confusion when the original names are restored. The other is the case of our little shell-bark hickory, whose history is as follows: *Juglans* (the walnuts and hickories) L. Gen. 1737; *Juglans ovata*, *Miller*, Dict. 1768; *Hicoria* (the hickories separated from the walnuts) *Rafinesque*, Fl. Ludov. 1817; *Carya*, *Nuttall*, Gen. 1818 (the same group with a new name); *Carya alba*, *Nutt.*, 1818; *Hicoria ovata*, *Britton*, 1888 (the original specific name restored). According to the new rules this should be cited, *Hicoria ovata* (*Mill.*) *Britt.*

It is to be hoped that, laws of nomenclature being adopted, there will be less confusion in the future.

Under volunteer reports, Prof. Mason presented the subject of Forest Reservation. Under New Business, the following officers were elected for the remainder of the year: President, J. T. Willard; Vice-president, Prof. Hitchcock; Secretary, Marie B. Senn; Treasurer, F. A. Marlatt; Committee on Program, Professors Hitchcock, Nichols, and Willard. Ten new names were proposed for membership. Adjournment.

MARIE SENN, Sec'y.

OLD HOMES MADE NEW.

(Continued from page 90.)

and an exhibit of the brutal character of the amputator.

The next step is the replanting. Only those varieties should be planted that will grow well. Of our native elms, coffee beans, sycamores, honey locusts, and box elders, we know that they lived here centuries before the white man ever saw the State. They stood the drouths and storms of summer and the colds and snows of winter without the assistance of man; surely they will thrive when we lend them a helping hand, and as for beauty they can hardly be surpassed. Add the Austrian and Scotch pine, the blue Colorado spruce, the catalpa for moist and the ailanthus for dry localities, and the variety is all that could be desired.

Some people have a mania for gathering and displaying oddities. They fill their halls, parlors, and libraries with all sorts of bric-a-brac, curious stones, shells, tree-gnarls, roots, fossils, moss, bones, Chinese rugs, Hindoo gods, etc., until there is no place left to be comfortable. It must be expected that these will make a rarity garden and curiosity shop of their front yards. Instead of planting trees and shrubs that will adorn the place with sylvan beauty, they cultivate the Chinese ginko, the Japanese acacia, the Russian mulberry, the Michigan white pine, the European larch, the Canadian birch, the arbor vitæ, and dozens of other rarities which are possibilities only under exceptional care and conditions, and at best only live short lives. Not satisfied with their collection of botanical tramps, they ornament their lawns with cast-iron dogs, terra cotta elephants, and brass gorillas; they border their flower beds with medicine bottles, line the walks with shells, build mole-hill mountains, and crown these with toy castles; they clip evergreens into umbrella forms and convert their homes into dime museums generally. The true lover of nature and real beauty has no use for these things. The tree, the bush, the lawn, are beautiful to him when they are associated and contrasted with each other after the most perfect types of nature's art—not otherwise. The lawn or park is most beautiful which conceals most perfectly the work of its designer and maker.

It is difficult to speak of the detail arrangement of home grounds without some graphic illustrations. I have therefore added the plan of a home of a Kansas farmer, a man of sense and taste, who recently rebuilt the whole. It shows what can be done in re-arranging an old homestead. Five years ago, when he bought the place, it looked quite different. The barn, which is now south of the house, stood close to the road on the east side: the dwelling had its main entrance toward the north; the wind-mill and piggery have not been changed, but the farm road was located west of the house, between it and the barn. The one single and bold move of pushing the barn to the rear produced every necessary condition for a complete metamorphosis of the whole place into one of the finest homes in the State. It furnished the necessary space, without which nothing could have been done. It gave the landscapist a chance to transfer the road to the west of the house, to open a large lawn on the east side, to transfer the main entrance from the north to the east—a better place for several reasons, to bring the wind-mill into view, to plant a private hedge along the eastern limit of the lawn, to place a neat, low fence along the road, to build a carriage stop—a very desirable addition to every house, to admit the morning sun into the family room, and to gain all the needed ground for the desired ornamental planting. The home is now a model of convenience, cleanliness, and sylvan beauty.

"Go thou and do likewise."

A NOVEL ROAD IMPROVEMENT IDEA.

W. H. Watkins, the well-known stock dealer and farmer, has an idea in regard to road improvement which he wants to see embodied in a law by the present Legislature. His idea is to compel all owners of wagons and buggies to lengthen the double-trees on their vehicles so that the horses will have to travel immediately in front of the wheels, and not between them as under the present arrangement. By this means, he claims, the feet of the horses would prevent the cutting of ruts in the roads by the wheels of vehicles. The idea is a novel one, but it ought to be given a thorough trial before the Legislature is asked to "monkey" with it. Mr. Watkins thinks it would benefit the roads more than all the so-called working they have had since Missouri became a State.—*Richmond (Mo.) Conservator.*

The weekly *Stamp News* calls attention to certain peculiar effects produced by the balmy climate of the Bahamas. The new one-cent stamps represent Columbus with a clean-shaven face. The two-cent value shows him a few hours later with a full beard!

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RELIABLE Boots, Shoes, and Rubbers, direct from the leading eastern factories, at very low prices. Rebate tickets given on all cash sales. "Success," a history of the lives of noted men, given for \$5.00 in tickets. Webster's Unabridged Dictionary, or Columbian World's Fair Atlas presented for \$10.00 in tickets.

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